

BRIDGE ACROSS THE HUDSON RIVER AT NEW YORK CITY.

MARCH 21, 1890.—Referred to the House Calendar and ordered to be printed.

Mr. BAKER, from the Committee on Commerce, submitted the following

REPORT:

[To accompany H. R. 3886.]

The Committee on Commerce, to whom was referred bill H. R. 3886, entitled "A bill to authorize the construction of a bridge and approaches at New York City across the Hudson River, to regulate commerce in and over such bridge between the States of New York and New Jersey, and to establish such bridge a military and post road," have had the same under consideration, and beg leave to report, in lieu thereof, the following amendment in the nature of a substitute:

That authorization is hereby given to Jordan L. Mott, John King McLanahan, James Andrews, Thomas F. Ryan, Garrett A. Hobart, F. W. Roebbling, Charles J. Canda, Edward F. C. Young, Henry Flad, Gustav Lindenthal, A. G. Dickinson, John H. Miller, William Brookfield, Samuel Rea, William F. Shunk, Philip E. Chapin, and their associates, as a corporation as hereinafter provided, to locate, build, maintain, equip, and operate a bridge, proper approaches thereto and terminals, appurtenances and works connected therewith, across the Hudson River in and between the City of New York, in the State of New York, and the State of New Jersey, and to lay tracks thereon for the connection of the railroads on either side of said river in order to facilitate interstate commerce in the transportation of persons and property, and for vehicle, pedestrian, postal, military, and other purposes: *Provided*, That said bridge shall have not less than six railroad tracks, with a capacity for four additional tracks for future enlargement, and shall be constructed with a single span over the entire river between the towers, located between the shore and the established pier-head lines in either State, and at an elevation above the river, not less than that of the existing Brooklyn Suspension Bridge, over the East River, and which elevation may be increased by the Secretary of War as hereinafter provided, and that no pier or other obstruction to navigation, either of a temporary or permanent character, shall be constructed in the river between said towers.

SEC. 2. That the construction of said bridge shall be commenced within three years after the passage of this act, and shall be completed within ten years after the commencement of construction; but that the Secretary of War is hereby authorized to extend the time for the commencement of construction for two additional years upon cause shown by the company, and provided that the Secretary of War shall deem such cause sufficient and satisfactory; and that if the company fail to commence the construction of said bridge within the time so extended, this act shall be null and void. And the company, at least three months previous to commencing the erection of said bridge, shall submit to the Secretary of War a plan of the bridge, with a detailed map of the river at the proposed site of the bridge, and for the distance of one-half of a mile above and below the site, with such other information as the Secretary of War may require for a full and satisfactory understanding of the subject; and the Secretary of War may, upon receiving said plans and map and other information, order a hearing before a board of engineers appointed by him for taking testimony of persons, interested in railroads and navigation, relative to the clear height of the superstructure above ordinary high water; such clear height shall not be less than that named in section 1 of this act, and the Secretary of War may thereupon order such additional clear height as he shall deem necessary for the security of navigation. And he is hereby authorized and directed upon being satisfied that a bridge built on such plan and at said locality will conform to

the conditions of this act, to notify the said company that he approves the plans therefor; whereupon said company may proceed to the erection of said bridge. But until the Secretary of War approve the plan and location of said bridge, the erection of the same shall not be commenced; and should any change be made in the plan of the bridge during the progress of the work thereon, such change shall likewise be subject to the approval of the Secretary of War.

Sec. 3. That the bridge, with its approaches and railroad thereover, constructed under the provisions of this act shall be a lawful structure, and a military and post-road, but no toll charges shall be made for the transmission over the same of the mails of the United States, or for the right of way for United States postal telegraph purposes.

SEC. 4. That for the purpose of carrying into effect the objects stated in this act, the persons named in the first section hereof, and their associates, are hereby constituted and created a body corporate in law, to be known as the North River Bridge Company, and by that name, style, and title shall have perpetual succession; may sue and be sued, implead and be impleaded, complain and defend, in all courts of law and equity, of record and otherwise; may make and have a common seal, and shall have and possess all the rights, powers, franchises, and privileges, incident to or usually possessed by such companies. It may receive, purchase, and also acquire by lawful appropriation and condemnation upon making proper compensation therefor, to be ascertained according to the laws of the State within which the same is located, real and personal property and rights of property, and may mortgage, encumber, charge, pledge, grant, lease, sell, assign, and convey the same. And to aid in the construction of said bridge and approaches thereto, and railroad terminals, appurtenances, and works connected therewith, and to carry out the purposes of this act, the said North River Bridge Company is hereby authorized to issue its bonds and secure the same by mortgage on its property and rights of property of all kinds and descriptions, and its franchise to be a corporation. And generally and specially for the fully carrying out of the purposes and intentions of this act, the said North River Bridge Company, and its successors, shall have and possess all such rights and powers to enter upon lands, and for the purchase, acquisition, condemnation, appropriation, occupation, possession, and use of real estate and other property, and for the location, construction, operation, and maintenance, of said bridge, with its approaches, terminals, and appurtenances, as are possessed by railroad or bridge companies in the States of New York and New Jersey, respectively. That all persons, railroad and telegraph companies, respectively, desiring to use said bridge shall have and be entitled to equal rights and privileges in the passage over and the use of the same and the approaches thereto, for a reasonable compensation, to be approved by the Interstate Commerce Commission, as hereinafter determined, and to be paid to the North River Bridge Company, which is hereby duly empowered to collect the same. And sufficient trackage and terminal facilities shall be provided for all railroads desiring to use said bridge and appurtenances. In case any litigation arises out of the construction, use, or operation of said bridge or approaches thereto and railroad thereon, or for the condemnation or the appropriation of property in connection therewith under this act, the cause so arising shall be heard and tried before the circuit court of the United States for the judicial district in which the bridge or one of the approaches is located. Applications for condemnation or appropriation of property shall be made in the circuit court of the United States for the district in which such property is situated upon the petition of said company, and the hearing and trial of all other proceedings thereon shall conform as nearly as may be to the practice in the courts of the State in which such district is situated, in the case of condemnation or appropriation of property for railroads.

SEC. 5. That the Interstate Commerce Commission is hereby authorized to require the said North River Bridge Company, in addition to such reports as it may lawfully require of railroad companies, a statement certified to by the president of said North River Bridge Company of the actual cash expenditure for all property acquired and for the cost of construction of all structures and appurtenances, for equipment and for other proper and legitimate expenses incurred under this act; said statement shall be made on the completion of all the work and before the said North River Bridge Company shall collect tolls from the connecting railroad companies. The Interstate Commerce Commission shall be authorized to employ, at the expense of said North River Bridge Company, such expert accountants, as it may appoint and direct to examine the accounts of said North River Bridge Company for the purpose of verifying the said actual cash expenditures under this act. And the said ascertained cash expenditures shall form the basis on which the Interstate Commerce Commission shall approve the toll charges, to be paid by the connecting railroad companies to said North River Bridge Company, for the use of said bridge, approaches, tracks, and terminals in such manner, that whenever the net revenue, derived from said toll charges after paying all expenses for the proper and safe operation and maintenance of its property, and after paying all taxes, and after deducting five per centum of the gross revenue for the sinking fund, to be applied to the liquidation of any indebtedness,

shall exceed ten per centum on the above specified cash expenditure, the Interstate Commerce Commission may order a reduction of toll charges: *Provided*, That said reduction shall not be ordered oftener than once in three years: *Provided further*, That nothing contained in this section shall be construed as establishing contract rights between the United States and said North River Bridge Company as to the rate of toll authorized to be collected, but this section shall be subject to amendment or repeal as is provided in relation to every other section of this act.

SEC. 6. That the government and direction of said company shall be vested in a board of seven directors, who shall be stockholders of record, and who shall hold their office for one year, and until their successors are duly elected and qualified. The said directors, five of whom shall be a quorum, shall elect one of their number president; they shall also appoint a secretary and treasurer. The directors of said company shall have power to make such prudential by-laws as they shall deem proper for the management and disposition of the stock, property, and business affairs of said company, not contrary to the laws of the United States, and prescribing the duties of officers, artificers, and servants that may be employed, for filling vacancies, and for carrying on all business within the objects and purposes of said company. There shall be an annual meeting of the stockholders, for choice of directors, to be held at such time and place, under such conditions, and upon such notice as the by-laws may prescribe; and such directors shall annually make a report of their doings and of the business of the company to the stockholders, a copy of which, sworn to and signed by the president of the company, shall be transmitted to the Interstate Commerce Commission. Failure to elect directors on the day fixed by said by-laws shall not be deemed to dissolve said company, but such election may be held on any day appointed thereafter by the directors, first giving thirty days' notice thereof in manner provided in said by-laws. The capital stock of said company shall consist of not less than ten thousand shares of one hundred dollars each, which shall in all respects be deemed personal property, and shall be transferable in such manner as the by-laws of said company shall provide; but no share shall be transferable until all calls thereon shall have been fully paid in, and it shall not be lawful for said company to use any of its funds in the purchase of any stock in its own or any other corporation. The amount of such capital stock may be increased upon the vote of two-thirds of such stock of said company at any time outstanding.

SEC. 7. The real and personal property of the company shall be subject to taxation for State, county, and municipal purposes in the State where the same is located, but at no higher rate than other real and personal property in the State.

SEC. 8. That the said North River Bridge Company shall maintain on the bridge, at its own expense, from sunset to sunrise, such lights or signals as the United States Light-House Board shall prescribe.

SEC. 9. That nothing in this act shall be held or construed to in any manner involve the United States Government in any pecuniary obligations whatever, other than the payment of tolls over said bridge and approaches for troops and munitions of war, for which no higher charge per mile shall be made than the rate paid to railroads connecting with said bridge; but Congress hereby reserves the right to alter, amend, or repeal this act as the contingencies of commerce or the public good may require, and said company shall further be subject to the provisions of the interstate-commerce laws, and any amendments and supplements thereof.

The bill is by this substitute amended so as to embrace substantially the recommendations of the Secretary of War.

The committee have further provided by the new section, incorporated in the substitute as section 7, that the real and personal property of said company shall be subject to taxation in the States of New York and New Jersey the same as other real and personal property therein.

The committee submit herewith as a part of their report the several letters from the Hon. Secretary of War relating to the said bridge, and also the several exhibits embraced in the appendix marked Exhibits A to P.

NECESSITY FOR BRIDGE.

The necessity for a bridge over the Hudson River at New York is well known, as was fully attested before your committee at the hearings on the subject.

The number of passengers crossing the Hudson River, between the State of New Jersey and the city of New York, is estimated to exceed 40,000,000 per year, about half of which are railroad passengers.

The danger of the present method of crossing the river by steam ferry-boats during fog and in winter time from ice, together with loss of time by failure to make proper railroad connections, and also the inconvenience of landing along a water-front overcrowded with teams and vehicles of all descriptions, have been shown to the committee.

The necessity for such improvement as the proposed bridge will greatly increase from year to year, according to the growth of the country and increase of traffic to and from New York City, so that the speedy construction and completion of such a bridge, with its increased facilities for crossing the Hudson River, is of great importance, not only to the immediate neighborhood of New York City, but to the country south, west, and north of it.

Its commercial importance would seem to be as great as its engineering magnitude is unprecedented.

In the appendix is given a detailed description of the colossal structure proposed.

It will have a length, including the necessary approaches, of $5\frac{1}{2}$ miles.

It is a commendable feature of this enterprise that the plans for the bridge and the method of its construction have, for several years past, engaged the careful attention of eminent engineers, who have succeeded in gathering together representatives of large capital, who express themselves anxious and willing to carry this great work to a speedy completion, provided the project is approved by Congress as one worthy of its recognition, as asked for in the bill which they have presented. And it is promised on behalf of the incorporators named in the bill that the structure which it is proposed to erect will surpass all that the world has yet witnessed in the art of bridge construction.

THE BRIDGE AS A NATIONAL WORK.

Your committee is of the opinion that the bridge should be a national work, built under national authorization, and its operation should be under the supervision of the National Government for the following reasons:

(1) The bridge is not only of commercial importance to the immediate neighborhood of New York City, but to the whole country. It will be a gateway for the commerce of all the surrounding States into and out of the commercial metropolis of the country.

The traffic over the bridge will be wholly interstate, and therefore should be subject to national regulation under the United States interstate-commerce laws.

(2) To prevent abuses of administration and conflict of authority in the regulation of its affairs under the incongruous laws of two States, the bridge company should be placed directly under the protection and control of the United States Government.

(3) It has been, with apparent good reasons, shown to your committee that the raising of the vast amount of necessary money can be accomplished with less cost to the undertaking under one charter, and that to be a national one, than would be possible under the composite, conflicting, and patchwork legislation of two States, to be supplemented by an act of Congress of the United States. The legal reasons for this view, as submitted to the committee, are given in the appendix in the briefs of counsel.

(4) The colossal magnitude of the work, the difficulties of its construction, and the vastness of its commercial importance make it a fit subject for direct national recognition.

In return for this national recognition it is provided that the United States shall pay no toll charges over the bridge for the transmission of the mails or for the right of way for United States postal telegraph purposes. The saving which may be thus obtained for the Government is not accurately ascertained, but is estimated to be over \$150,000 per year, and will be growing as the mail traffic increases with the growing population.

To throw proper safeguards around the enterprise against fictitious capitalization and against financial abuses, it is provided that the books of the company shall be subject to examination by expert accountants to be appointed by the Interstate Commerce Commission, to ascertain the actual cash cost of the whole work, and the tolls, which the company shall be allowed to collect, shall be based on that cash cost. The whole financial operations of the company are thereby subject to the most searching governmental inspection and control. As the traffic may increase over the bridge, the benefits therefrom are not to accrue to the company in the form of increased dividends, but to the people in the form of reduced toll rates.

It is also provided that the Government shall be under no pecuniary obligations of any kind in connection with the work.

The exhibits accompanying this report, marked A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, are herewith returned and made a part of the report, in order that a fuller and clearer understanding of the magnitude of the proposed undertaking may be had, and of the reasons which have led your committee to report the bill as proposed to be amended by the substitute. The title should be amended by inserting before the words "To authorize" the words "To incorporate the North River Bridge Company and."

VIEWS OF MR. TURNER, OF GEORGIA.

I concur in that part of the bill which authorizes the construction of a bridge across the Hudson River, upon such terms as the Chief of Engineers recommends and as may be necessary to protect the interests of navigation. This is the usual practice in such cases. But I dissent from those provisions of the bill which create a bridge corporation within two States and confer corporate franchises, and which also grant power to condemn and appropriate private property within a State under proceedings in the United States courts. Waiving now any discussion of the precedents on this subject, no sufficient reason has been given for not asking these extraordinary grants from the States of New Jersey and New York.

H. G. TURNER.

APPENDIX.

MEMORANDUM OF EXHIBITS REFERRED TO IN THE PRECEDING REPORT.

EXHIBIT A.—Letter of Brigadier General Casey, Chief of Engineers, to the Secretary of War, dated January 23, 1890.

EXHIBIT B.—Letter of the Secretary of War, dated January 24, 1890, transmitting Exhibit A to the chairman of the Committee on Commerce.

EXHIBIT C.—Letter of the Secretary of War, dated January 31, 1890, transmitting Exhibit D to the chairman.

EXHIBIT D.—Copy letter from the Corps of Engineers, U. S. Army, dated July 10, 1888, relating to H. R. 10642, Fiftieth Congress, second session, and S. 3250, same Congress, having reference to the same project.

EXHIBIT E.—Letter dated February 4, 1890, from the Board of Engineers, U. S. Army, to the Chief of Engineers.

EXHIBIT F.—Letter dated February 12, 1890, transmitting Exhibits E and G to the chairman, having reference to the bill H. R. 3386.

EXHIBIT G.—Letter dated February 10, 1890, from the Chief of Engineers to the Secretary of War, having reference to the same bill.

EXHIBIT H.—Detailed description of the proposed North River bridge, made before the committee by Gustav Lindenthal, the designer and architect thereof, with views and diagrams.

EXHIBIT I.—The argument of Mr. Lindenthal, made before the committee in behalf of the project.

EXHIBIT J.—Legal briefs and opinions, by John K. Cowen and J. E. D. Cross, presented to the committee in response to their request for information upon the questions stated.

EXHIBIT K.—Opinion and remarks of Charles F. McLean upon the power of Congress to authorize the powers proposed to be conferred by the bill.

EXHIBIT L.—Opinion and remarks of M. H. Houseman before the committee.

EXHIBIT M.—Remarks of James Andrews before the committee.

EXHIBIT N.—Remarks of Samuel Rea, engineer, before the committee in relation to the proposed project.

EXHIBIT O.—Remarks of Alexander D. Anderson upon the public necessity and importance of the proposed bridge.

EXHIBIT P.—Extracts from press comments in relation to the proposed bridge.

EXHIBIT A.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., January 23, 1890.

SIR: I have the honor to return herewith H. R. 3886, Fifty-first Congress, first session, "A bill to authorize the construction of a bridge and approaches at New York City across the Hudson River, to regulate commerce in and over such bridge between the States of New York and New Jersey, and to establish such bridge a military and post road," and to recommend the following amendments thereto:

Section 1, lines 23 to 27, strike out all of this section after the word "lines" in line 23.

Section 2, line 15, strike out the words "or reasonable;" for, if left in, these words would simply tend to complicate the case, and render the determination of the question of the height of the bridge uncertain and difficult.

As it is important to fix a time limit for the commencement and completion of the bridge, the following additional section is recommended:

SEC. 9. That plans satisfactory to the Secretary of War for said bridge shall be submitted to him within one year after the passage of this act, and the construction of said bridge shall be commenced within one year after the approval of the plans by the Secretary of War, and the structure shall be completed within ten years from the date of said approval; otherwise the provisions of this act shall be null and void.

A copy of H. R. 3886 with the proposed amendments indicated thereon is herewith submitted, and as thus amended I know of no objection to its passage, so far as the interests of navigation are concerned.

The letter from the chairman of the Committee on Commerce was received here to-day and a reply is asked by to-morrow, the 24th. If time had allowed this bill would have been referred to a Board of Engineers for report, but as report must be made at once, in order to reach the committee by to-morrow, the above is respectfully submitted.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. REDFIELD PROCTOR,
Secretary of War.

EXHIBIT B.

WAR DEPARTMENT,
Washington City, January 24, 1890.

SIR: In returning herewith H. R. 3886, "To authorize the construction of a bridge and approaches at New York City," etc., which was referred to this Department for its views thereon, I beg to invite attention to the accompanying report of the Chief of Engineers, in which certain amendments and additions to the bill are suggested, and to the inclosed copy of the bill on which are indicated the amendments and additions referred to.

Very respectfully,

REDFIELD PROCTOR,
Secretary of War.

Hon. CHAS. S. BAKER,
Chairman of Committee on Commerce, House of Representatives.

EXHIBIT C.

WAR DEPARTMENT,
Washington, January 31, 1890.

SIR: In response to your request of the 27th instant I have the honor to inclose herewith a copy of the report of the Board of Engineers, dated July 10, 1888, upon House bill 10642, Fiftieth Congress, first session, "To authorize the construction of a bridge and approaches at New York City across the Hudson River in and between the States of New York and New Jersey."

Very respectfully,

REDFIELD PROCTOR,
Secretary of War.

Hon. CHARLES S. BAKER,
Chairman Committee on Commerce, House of Representatives.

EXHIBIT D.

THE BOARD OF ENGINEERS, ARMY BUILDING,
New York City, July 10, 1888.

GENERAL: The Board of Engineers, to which was referred, by your letter of July 3, H. R. 10642, a bill "To authorize the construction of a bridge and approaches at New York City across the Hudson River in and between the States of New York and New Jersey," and by your indorsement of July 9, 1888, S. 3250, a bill for the same purpose, has the honor to report that these bills differ but slightly in language and without affecting the subject under consideration; that the Board has this day held a public meeting upon the matter contained in the bills, the proceedings of which will be forwarded as soon as the stenographic notes can be transcribed; that the Board has carefully considered the bill H. R. 10642 and recommends the following changes in its language:

Page 2, line 13: Strike out the word "established" and insert in its stead the word "existing."

Page 2, lines 14 and 15: Strike out the words "forty feet in the clear above the level of ordinary high water, and that this minimum height" and insert in their stead "forty-five feet in the clear above the level of mean high water at the towers of the bridge, and one hundred and fifty-five feet above the same level at the center of the main span, and these heights;" so that the proviso of this section shall read, "*Provided, That said bridge shall be constructed with a single span over the entire river between the existing pier lines in either State, and at an elevation over the river of at least one hundred and forty-five feet in the clear above the level of mean high water at the towers of the bridge, and one hundred and fifty-five feet above the same level at the center of the main span, and these heights shall be exclusive of the deflections of the superstructure from loads or temperature effects, and that no pier or piers or other obstructions to navigation either of a temporary or permanent character shall be placed or built in the river between said pier lines under this act.*"

On page 3, section 4, line 8: After the word "plans" insert "and location."

In section 5: Strike out lines 1, 2, 3, and 4 to the word "provided" and insert "that plans satisfactory to the Secretary of War for said bridge shall be submitted to him within one year after the passage of this act, and the construction of said bridge shall be commenced within one year after the approval of the plans by the Secretary of War, and the structure shall be completed within ten years from the date of said approval; otherwise the provisions of this act shall be null and void."

The Board is of opinion that if these changes are incorporated in H. R. 10642 they will sufficiently guard the interests of the United States and the navigation of the Hudson River.

The copies of H. R. 10642 and S. 3250, with the letters from the Committee on Commerce of the House of Representatives respectively transmitting them to the War Department, are herewith returned.

Respectfully submitted,

THOS. LINCOLN CASEY,
Colonel, Corps of Engineers.

HENRY L. ABBOT,
Colonel of Engineers, Brevet Brigadier-General.

C. B. COMSTOCK,
Colonel of Engineers and Brevet Brigadier-General.

D. C. HOUSTON,
Lieutenant Colonel of Engineers.

W. R. KING,
Major of Engineers.

The CHIEF OF ENGINEERS, U. S. A.,
Washington, D. C.

EXHIBIT E.

THE BOARD OF ENGINEERS, ARMY BUILDING,
New York City, February 4, 1890.

GENERAL: The Board of Engineers, to which was referred, by your indorsement of January 28, 1890, H. R. 3886, Fifty-first Congress, first session, a bill "To authorize the construction of a bridge and approaches at New York City across the Hudson River, to regulate commerce in and over such bridge between the States of New York and New Jersey, and to establish such bridge a military and post road," has the honor to report as follows:

The Board concurs in the recommendations of the Chief of Engineers as expressed in his communication of January 23, 1890, and also suggests in this instance what it has already recommended in a previous report upon a similar bill for the construction of a railroad bridge across North River at New York City, that the bridge shall be constructed at an elevation over the river of at least 145 feet in the clear above the level of mean high water at the tower of the bridge and 155 feet above the same level at the center of the main span.

The question whether the towers should be built out to the pier-head line or should be restricted to the bulkhead line is a matter depending on location, and should be left to be decided by the Secretary of War when the location of the bridge is definitely determined.

These recommendations will be carried into effect by the following changes in the language of the proviso in section 1 of the bill:

Strike out the words "the established pier" in line 19 and substitute

therefor "towers whose location between the shore and the existing pier-head."

After the word "State" in line 20 add "shall be determined by the Secretary of War;" also add after the word "and" in the same line "that the bridge shall be constructed."

Strike out all of section 1 after the word "river" in line 20 and substitute therefor "of at least one hundred and forty-five feet in the clear above the level of mean high water at the towers of the bridge and one hundred and fifty-five feet above the same level at the center of the main span, and these heights shall be exclusive of the deflections of the superstructure from loads or temperature effects; and that no pier or other obstruction to navigation either of a temporary or permanent character shall be placed or built in the river between said towers under this act."

As thus amended the proviso will read as follows:

Provided, That said bridge shall have not less than six railroad tracks, and shall be constructed with a single span over the entire river, between towers, whose location between the shore and the existing pier-head lines, in either State, shall be determined by the Secretary of War, and that the bridge shall be constructed at an elevation above the river of at least one hundred and forty-five feet in the clear above the level of mean high water at the towers of the bridge and one hundred and fifty-five feet above the same level at the center of the main span, and these heights shall be exclusive of the deflections of the superstructure from loads or temperature effects; and that no pier or other obstruction to navigation, either of a temporary or permanent character, shall be placed or built in the river between said towers under this act.

The papers referred by you, forming the subject of this report, are herewith returned.

Respectfully submitted.

HENRY L. ABBOT,
Colonel of Engineers, Bvt. Brig. Gen., U. S. A.,
President of the Board.

C. B. COMSTOCK,
Colonel of Engineers, Bvt. Brig. Gen., U. S. A.

D. C. HOUSTON,
Colonel of Engineers.

G. L. GILLESPIE,
Lieutenant-Colonel of Engineers.

The CHIEF OF ENGINEERS, U. S. A.,
Washington, D. C.

EXHIBIT F.

WAR DEPARTMENT,
Washington City, February 12, 1890.

SIR: I return herewith H. R. No. 3886, "To authorize the construction of a bridge and approaches at New York City across the Hudson River, to regulate commerce in and over such bridge between the States of New York and New Jersey, and to establish such bridge a military and post road," referred to this Department on the 27th ultimo, and invite your attention to the inclosed report of the Chief of Engineers,

dated the 10th instant, and accompanying paper, also an amended copy of the bill which expresses the views of the Department thereon.

Very respectfully,

REDFIELD PROCTOR,
Secretary of War.

Hon. CHAS. S. BAKER,
Chairman Committee on Commerce, House of Representatives.

EXHIBIT G.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., February 10, 1890.

SIR: I have the honor to return herewith a letter from Hon. Charles S. Baker, M. C., chairman of the House Committee on Commerce, inclosing for report of a Board of Engineers a copy of H. R. 3886, Fifty-first Congress, first session, "A bill to authorize the construction of a bridge and approaches at New York City across the Hudson River, to regulate commerce in and over such bridge between the States of New York and New Jersey, and to establish such bridge a military and post road," and to state that the bill was referred to the Board of Engineers stationed at New York City, a copy of whose report thereon is herewith submitted.

In this connection attention is respectfully invited to my former report on this bill, dated January 23, 1890, and in accordance with my recommendations therein, and with the recommendations of the Board of Engineers, in which I fully concur, I have the honor to recommend the following amendments to the bill:

Section 1, line 19 strike out the words "the established pier" and substitute therefor the words "towers whose location between the shore and the existing pier head."

Same section, line 20, after the word "State" insert the words "shall be determined by the Secretary of War," and after the word "and" insert the words "that the bridge shall be constructed;" also, after the word "river," in the same line, strike out the remainder of the section and substitute therefor the following: "of at least one hundred and forty-five feet in the clear above the level of mean high water at the towers of the bridge and one hundred and fifty-five feet above the same level at the center of the main span, and these heights shall be exclusive of the deflections of the superstructure from loads or temperature effects; and that no pier or other obstruction to navigation, either of a temporary or permanent character, shall be placed or built in the river between said towers under this act."

Section 2, line 4, strike out the word "describe" and substitute therefor the word "prescribe."

Same section, line 12, after the word "subject" strike out the remainder of that line and the succeeding lines down to and including the word "river," in line 16.

As it is important to fix a time limit for the commencement and completion of the bridge, the following additional section is recommended:

SEC. 9. That plans satisfactory to the Secretary of War for said bridge shall be submitted to him within one year after the passage of this act, and the construction of said bridge shall be commenced within one year after the approval of the plans by the Secretary of War, and the structure shall be completed within ten years from the date of said approval; otherwise the provisions of this act shall be null and void.

A copy of H. R. 3886 with the proposed amendments indicated thereon is herewith submitted, and as thus amended I know of no objection to its passage, so far as the interests of navigation are concerned.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. REDFIELD PROCTOR,
Secretary of War.

EXHIBIT H.

DESCRIPTION OF THE PROPOSED NORTH RIVER BRIDGE AT NEW YORK CITY, BY GUSTAV LINDENTHAL, CHIEF ENGINEER, WITH VIEWS AND DIAGRAMS.

It is presumed that all are aware of the present antiquated manner of landing passengers in New York City from the railroads now terminating on the New Jersey side of the Hudson or North River. There is annoyance, and even danger, to the landed passengers on overcrowded and nasty streets, and the demand for better facilities has repeatedly and urgently been made.

It has led to the attempt of tunneling underneath the river, but the difficulties are great, and though they can undoubtedly be overcome, they point to the necessity of a more convenient method of crossing the river, as far as the railroads are concerned. It is proper to state that this question of submarine railroad tunnels has been carefully considered and weighed in connection with the other possible method of crossing the river by a bridge. The investigations made for the purpose have led to the conclusion that submarine tunnels would afford no relief to the railroads. The heavy grades necessary for diving over 100 feet under the river; the heavy expense for maintenance in the form of pumping, lighting, and ventilating; the slow speed to be imposed on trains for reasons of safety; the manifestly greater risk to human life in case of wrecks or derailments; the well-known aversion of travelers to submarine chilly and damp tunnels, with the incessant and unavoidable roar; the vast expense of an adequate underground terminal station in the lower part of the city, liable to be flooded by spring floods, and other conditions have been carefully investigated.

A bridge with six tracks has been found to possess greater capacity for traffic volume than ten submarine tunnels. A bridge with ten tracks is equal to sixteen submarine single-track tunnels. It has also been found that a ten-track bridge, with the corresponding terminal facilities, would cost less than one-third the cost of the corresponding tunnel arrangement. Another advantage for the bridge is that it will not interfere with the streets in any manner, because the bridge approaches and terminal stations are to be on a level high above the streets, similar to the arrangement of the Pennsylvania Railroad station in Philadelphia.

Tunnel terminal stations can evidently not be elevated above the street. They can also not be on the surface of the ground, because there would then be grade crossings with the intersecting streets and such would not be allowed in New York City. The tunnel terminals, therefore, must be under ground and under the streets. We know from

the London example what this means: Dark, dingy, damp, and unhealthy quarters, full of smoke and noise. Dirt and soot everywhere and unavoidable. Everybody glad to get out into the fresh air and into daylight. The bridge requires no pumping, lighting, or ventilating. All this great expense for submarine tunnels does not exist for a bridge.

But it is also proper to say, that submarine tunnels under the Hudson River are a necessity for local travel and rapid communication between the lower part of New York City and Jersey City. The present ferry facilities can hardly be increased; there is no more room for ferry landings on the New York side; the ferry-boats are overcrowded mornings and evenings, sometimes to a dangerous extent. The only feasible relief for local communication will be by means of submarine tunnels, two of which are already in process of construction. The great height of the bridge and its location too far away from the lower part of New York City will not very much accommodate local travel, though it is considered the only feasible and practical solution as far as the railroads are concerned.

The obstacles to the construction of a bridge across the North River seemed insurmountable. The only kind of a bridge thought of was one with piers in the river. The foundations to rock would be very deep, nearly 200 feet; but the greatest objection was that such piers would greatly damage the large and steadily increasing commerce over the most magnificent river highway in the United States.

The writer was the first one to propose to bridge the North River, at New York City, in one single span, and to present fully worked out plans for the same. Descriptions and illustrations of the bridge have been widely published, not only in this country, but everywhere abroad during the last two years. The public is, therefore, well acquainted with the subject.

The importance of this enterprise, its benefits and far-reaching consequences to the city of New York and vicinity, can hardly be overestimated.

The bridge is designed for six tracks, but will be built to carry four additional tracks, or ten in all, should it become necessary.

Only a fraction of the combined capital required for a number of double-track bridges will build a single structure, stronger and more enduring for the same number of tracks. For instance, a double-track bridge in one single span over the North River is estimated to cost \$9,000,000 for construction alone, while a bridge capable of carrying six tracks is estimated to cost \$15,000,000; and \$1,000,000 additional will provide for four more tracks, or in all, ten tracks on the same structure. Five single bridges for double tracks would therefore cost about \$45,000,000 for construction alone, without the approaches, stations, and without right of way. This will show the economy, as well as the necessity, of providing one bridge large enough for all present and future needs, and one station for all the western roads coming into New York.

Of all the methods proposed and studied for an entrance into New York City, either by submarine tunnels under or by bridging over the Hudson River, the plan of one great multiple track bridge has been found to be the relatively cheapest solution, as far as the railroads are concerned.

The construction of the proposed bridge, gigantic and unprecedented as are its proportions, will be a matter of much less relative difficulty than was the construction, at the time, of either the East River bridge or of the St. Louis bridge. In such a degree have the manufacturing and

constructive facilities of the country improved and increased, that the cost of the proposed bridge will be only little more than one-half of what it would have cost twelve years ago.

The plans are worked out not only for the bridge, but also for the approaches and terminal stations at both ends, without which the bridge would be of no use.

The large passenger station in New York City, to be located in the most central part of it, is for two decks, accommodating together thirty tracks, 1,000 feet long. This arrangement has been chosen on account of the very costly right of way, which makes it advisable to use height, rather than width, for obtaining the required room. The track platforms will be reached by stairways and numerous elevators, at about the same height as the present elevated railroad stations.

The approaches will be on iron viaducts of the most solid construction, with buckle plate floors and stone ballast, and partly they will be (for the portion next to the station) on stone-arch viaducts, similar to those for the East River Bridge. On the New Jersey side the approach will begin from the meadows between the Hackensack River and Bergen Hill. This latter ridge will be crossed in an open cut, 100 feet wide. The stone quarried out of this cut will not be sufficient by one-half to furnish the concrete material for the tower foundations and anchorages, which are both to be faced with granite masonry.

It will be seen, then, that there is other large work to be done besides building the bridge, and an idea of the cost can be obtained from the following estimate:

The North River Bridge, including the anchorages, 6,500 feet long	\$15,000,000
The approaches of stone and iron and the connecting railroad switch-yards, engine-houses, the grand terminal station building and appur-tenances	11,000,000
Right of way, interest during construction, and incidentals	14,000,000
Total cost	40,000,000

Great as is this cost, it is fully justified by the traffic in sight. But the undertaking is feasible only when all the railroads can cross over; for not one of them—even the great Pennsylvania Railroad, would build the bridge and terminal improvements single-handed, because for the financial burden assumed it would certainly, by law, be obliged to let the other railroads cross over on the same terms, who thus would share in the benefits of the bridge without having shared the burden of creating it.

There are nearly one thousand trains arriving and departing at present per day from the terminal stations in New Jersey, opposite New York City, with nearly sixty thousand passengers.

This travel is growing all the time, and by the time the bridge will be finished (say ten years), the traffic may have doubled in anticipation of its completion.

The experience with the Broad Street Station of the Pennsylvania Railroad in Philadelphia, with the Brooklyn Bridge, with the elevated railroads in New York, with all of them, was that the most liberal estimates of probable traffic were largely exceeded, and that it keeps growing steadily to unforeseen proportions.

This points out the necessity of providing on the largest scale attainable in the plans for the bridge and the terminal station, for a traffic, than which a larger and more important will not be in any part of the Old or the New World.

No engineering project was ever proposed of greater merit at its in-

ception, and more carefully studied in its preliminary stage, nor of so great and pressing necessity.

Mere figures would not give an adequate impression of the gigantic work, but some idea of it can be obtained from a comparison with the great East River Bridge, as will be seen from the following data:

	Brooklyn Bridge.	North River Bridge.
Length, including anchorages.....feet..	3,700	6,500
Height of anchorages.....do.....	85	210
Weight of each anchorage.....tons..	60,000	660,000
Length of each land span.....feet..	930	1,500
Length of middle span.....do.....	1,600	*2,850
Size of towers at high-water mark.....do.....	140 by 59	340 by 180
Height of towers from high water.....do.....	272	500
Height of tower from the deepest foundation to top.....do.....	350	690
Width of bridge.....do.....	85	86
Height above high water.....do.....	135	over 135
Length of one cable.....do.....	3,580	6,100
Number of cables.....do.....	4	4
Finished diameter of cable.....inches..	15½	48
Number of railroad tracks.....do.....	2	6 to 10
Grade on bridge.....per cent..	3½	1½
Weight of iron and steel in the structure.....tons..	6,750	60,000
Allowable speed of trains.....miles per hour..	10	30
Cost from anchorage to anchorage, exclusive of land damages.....	\$5,600,000	\$16,000,000

* In the clear.

The North River Bridge will differ from the East River Bridge also in the character of its details.

Thus the anchorages will be accessible in every part, through commodious passages and chambers in the interior of the huge anchorage mass. In the East River Bridge the anchors and chains are buried in the masonry, and it was not thought necessary to make them accessible.

The towers of the North River Bridge will be built of steel, forming two half-towers with eight columns each, and strongly braced together to resist the action of tornadoes, which would not affect the structure any more than it would a solid mountain.

The columns will be 7 feet in diameter at bottom, and taper to 5 feet diameter on top; the towers can be erected without false works; but the greatest difference will be in the arrangement and construction of the cables.

Thus, in the East River Bridge the cables are placed side by side a certain distance apart, and the required rigidity for the roadway is obtained through six stiffening trusses, also placed side by side.

In the North River Bridge the cables are placed in pairs above each other 50 feet apart, with the bracing between them, so that they form two arched girders of huge proportions, which are capable of giving very great rigidity to the roadway without the aid of stiffening trusses, and with a great saving of material and weight. But, as an additional precaution for the great concentrated loads of heavy locomotives, there is under each of these arch-girders a stiffening truss, two in all, which will also aid in resisting the effect of tornadoes in combination with the wind-cables. These are four in number, placed on top and below the stiffening girders; each wind-cable will have a diameter of 16 inches, or larger than the diameter of the East River main cables.

In this way the required rigidity for fast trains is obtained with the least possible weight of the suspended structure. In no other way can it be obtained with an equal economy of material and cost. It will be admitted that a bridge over which trains would have to run slowly

would be inadequate for the expected traffic, and would be behind the age. The regular working speed over the bridge is to be 30 miles per hour.

While in the Brooklyn bridge the cables are compacted and closely wrapped with wire into a solid cylindrical shape, in the North River bridge the cables will be also compacted into a cylindrical shape, but will be covered with a solid sheet mantle or steel envelope, leaving an air space of 2 inches all around the wires for the double purpose of protecting the cables against uneven temperature effects and against the weather. The water will be more thoroughly and certainly excluded by the solid sheet covering than can be the case with wire-wrapping only. The steel envelopes can be removed for the inspection of the cables whenever needed. The preservation of the cable is thereby made easier. Linseed-oil can be applied readily whenever needed, and the wires thoroughly soaked with oil, thus preventing rusting.

The architectural features of the bridge have been well considered. The graceful curves of the cables, the simple and strong form of the double towers, the large-featured architecture of the anchorages, all combine to make the structure grand and harmonious in all its parts without artificial devices or ornamentation.

There is no other place in the world requiring such a long span-bridge, and it is very probable that a longer span will never be proposed or designed anywhere. The much-talked-of bridge over the English Channel would be 20 miles long, but the longest spans proposed for it do not exceed 1,800 feet. It is the length of span and not of the bridge which taxes the ingenuity of man and the resources of science, for the longest bridge in the world does already exist in the city of New York in its elevated railroad, 33 miles long, as one continuous bridge. But no one would assume that as the greatest achievement in bridge engineering.

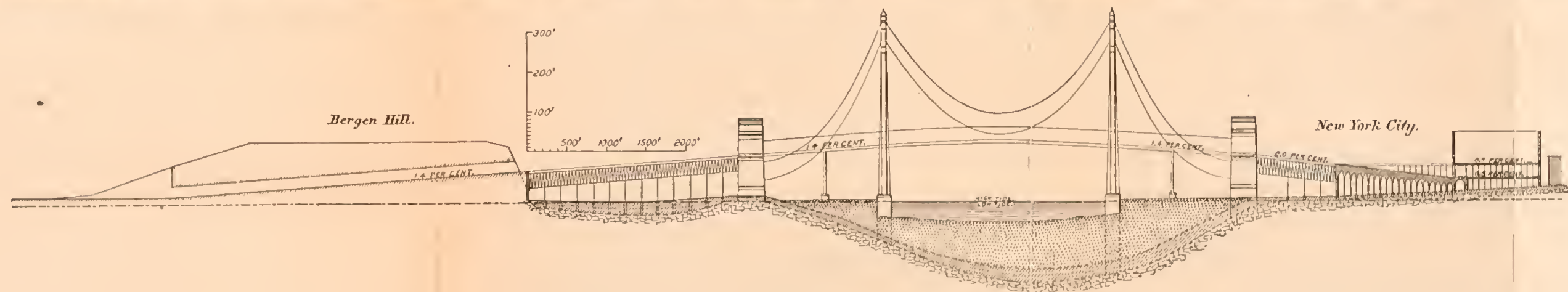
Thus the time has arrived when the manufacturing facilities of the country, its financial prosperity, and the resources of science combine to make the construction of this great work possible.

THE NORTH RIVER RAILROAD BRIDGE IN ONE SPAN OVER THE HUDSON RIVER.

PROPOSED AT NEW YORK CITY.

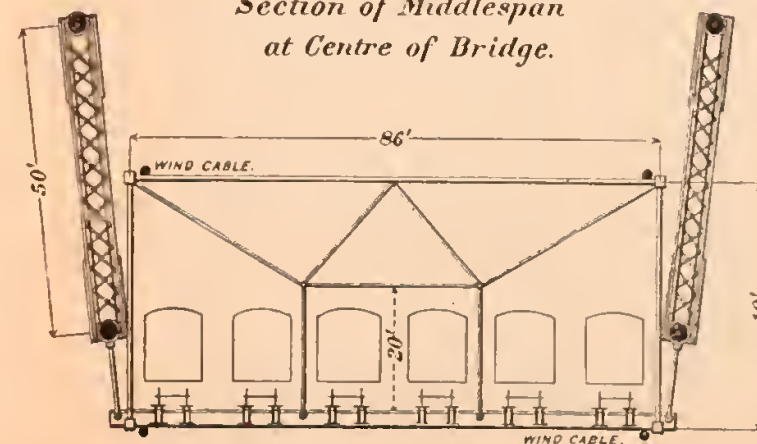
VIEW LOOKING FROM NEW JERSEY SHORE.

SIX RAILROAD TRACKS. MIDDLE SPAN 2850 FEET. END SPANS 1500 FEET.

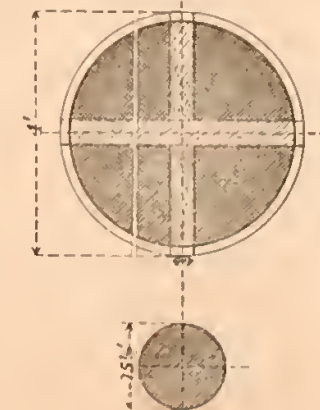


Profile of the proposed North River Bridge.

Section of Middlespan
at Centre of Bridge.



Section of Cable.



Cable for East River Bridge
on same Scale.

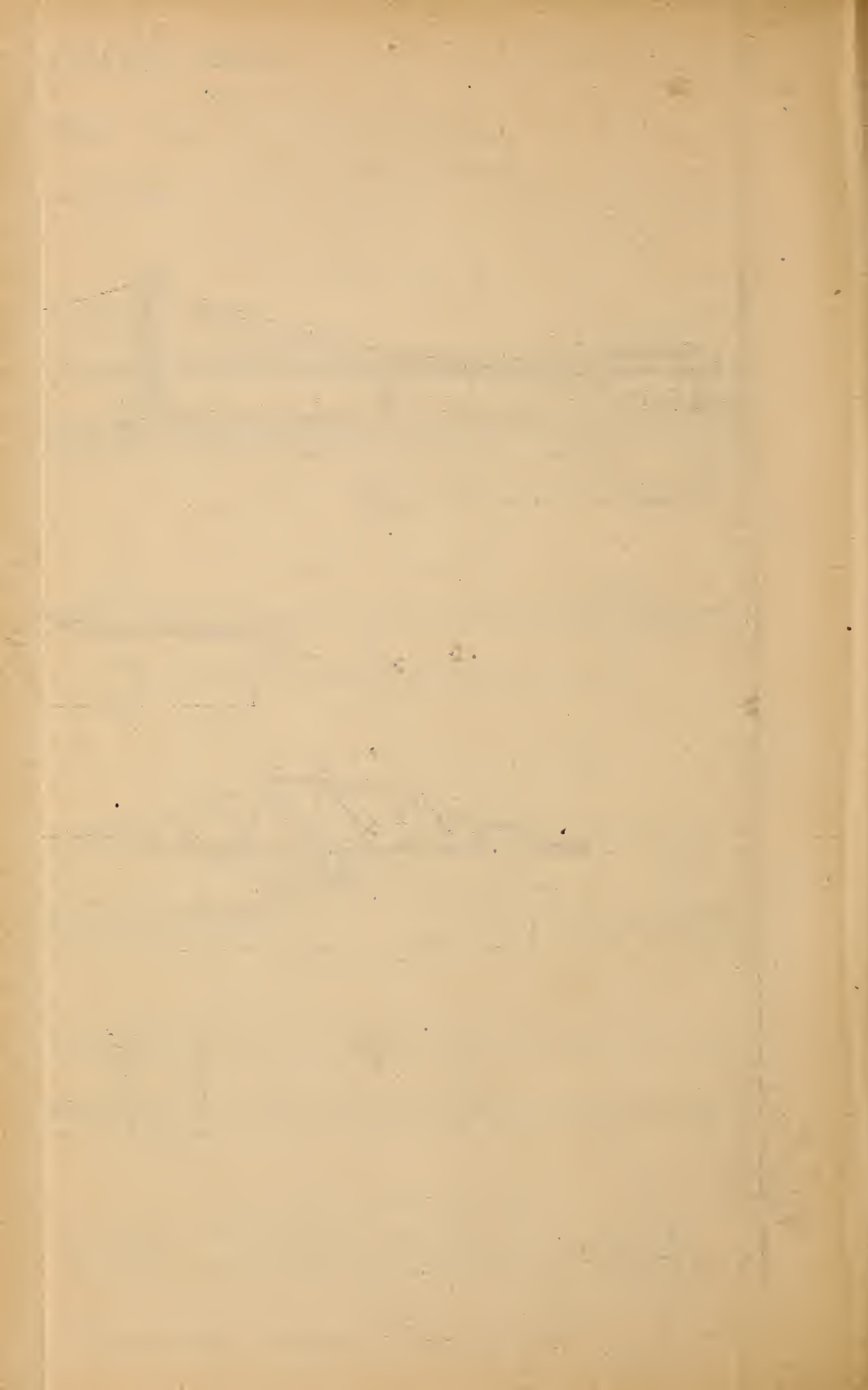


EXHIBIT I.

ARGUMENT OF MR. LINDENTHAL BEFORE THE COMMITTEE.

Mr. Chairman and gentlemen of the Committee on Commerce, the subject of our bill (H. R. 3386) is a large suspension bridge over the Hudson River at New York City, for which we respectfully submit our plans to illustrate the character of the work proposed. As to the necessity and urgency of this work others will ask permission to appear and to speak; I beg leave to confine myself to the salient engineering and business features.

The bridge is intended for railroads and other purposes, and is, as already remarked, to have one single span over the Hudson River at its narrowest part at Hoboken. It is intended to be at least as high as the Brooklyn bridge, and higher if the Secretary of War should so determine. This determination can not be fairly made except after a full official inquiry, undertaken after the final plans have been submitted to the Secretary of War, when an intelligent hearing of the representatives of the navigation and railroad interests can be had. Such a course was pursued for the great suspension bridge between New York and Brooklyn with quite satisfactory results.

The height of the Brooklyn bridge is 135 feet at the middle of the span above ordinary high water at 60° Fahr. The superstructure falls and rises in summer and winter respectively $2\frac{1}{2}$ feet from the position at the above named middle temperature. We will be prepared to build the North River bridge of greater height if deemed necessary by the Secretary of War, after a full investigation. We respectfully ask for such a procedure as will give an opportunity for an intelligent judgment on the question of height. This we deem necessary for the safety of the public and passengers using it. You are aware of the very much greater expense of operating steep grades. To illustrate the point, permit me to mention as an instance the mountain grade on the Pennsylvania Railroad from Altoona to Gallitzin. An express train arriving at Altoona from the East is cut in two and the halves taken up on the horse-shoe and to the top of the mountain grade as separate trains, or an extra locomotive is attached to the whole train. This grade is only 95 feet per mile.

The grade on the New York approach will probably be steeper than 95 feet per mile, because the distance from the station in New York to the river will be necessarily short and can not be changed. If the bridge were made very high then the New York approach would become too steep and the railroads could not use the bridge. It would require three locomotives to get an express train over the bridge. On the other hand, great risk and danger would result from the unsafe operation of a train descending from a very high bridge into the New York station on rainy days when the brakes are liable to slip and cause a runaway.

It is obvious, therefore, that the question of height is one that should be decided only when all the facts can be known and weighed. Every inch of height that can be saved without injury to navigation will be a distinct benefit to the millions of passengers crossing the bridge for centuries to come.

The time of three years, eventually five years before the actual commencement of construction, is, in our judgment, the least which

can safely be stipulated for this colossal structure. It will require from two to three years of hard work for the acquisition of the necessary lands and for the final plans and estimates depending thereon. The acquisition of the necessary lands under the laws of the States of New York and New Jersey may be delayed by litigation, as experience with similar undertakings, and particularly in the case of the Brooklyn bridge, has shown. Furthermore, it is now the rule with large investors and with financial institutions that plans and estimates must be fully worked out before the money is paid. The failure of some and excessive cost of other large engineering works have been caused by the insufficient preliminary work and from the want of time for careful preparation. As long as the company has no right to enter upon lands it can not make borings for foundations, and a great part of the preliminary work depending thereon can not be done.

The proposed work is not only unprecedented in magnitude, but also in character of construction, and should not be mistaken for the routine work of an ordinary Missouri or Ohio River bridge, which can commercially be made to order in any of the existing bridge works, and can easily be built in two years. The cost of our bridge will be greater than that of all the existing Missouri and Ohio River bridges put together.

The time of construction is always much shortened by a careful preparation and organization of the work before it is commenced, and, in this case, the acquisition of over \$13,000,000 worth of property for right of way is a condition precedent to construction. We respectfully submit that the company should be allowed to exercise common business prudence in the undertaking, and should have no unnecessary risks thrown upon it. The experience of all railroads in the acquisition of the necessary ground for large terminal stations in large cities shows that delays from litigation are almost unavoidable, and more time is usually consumed in the preparation than in the construction of such work.

In my opinion the bridge can be built in six to seven years, after everything is ready for pushing the work, *i. e.*, the detail plans for every part of the structure worked out, estimates prepared, all needed tests and experiments made, all needed land acquired, and the money ready in the treasury.

The interests of the bridge company will require a speedy completion in the shortest possible time, because the interest account on the capital invested during construction is a great and controlling item for the time of completion.

Furthermore, the investors can not receive a return on their capital and on the heavy expenses already had till the bridge is in operation. Self-interest is, therefore, the greatest incentive for the speedy completion of the work, and in fact of any work, undertaken by private capital.

The Brooklyn bridge required fifteen years for completion, although as a private undertaking it could have been completed in perhaps half the time. The Forth bridge in Scotland, the largest now in the world, just opened to travel, was eight years in building. The intention of our company is, if possible, to have the bridge finished in the year 1900 as a fitting celebration of the end of the nineteenth and the beginning of the twentieth century.

The bridge is intended to be located so that all the railroads now or in the future terminating in New Jersey, opposite New York City, may use it with the same facility.

From our investigations we are convinced that less than six railroad tracks will not accommodate the traffic to commence with. It would be a great mistake to build the structure too small; therefore our bill provides in good faith for a bridge with a capacity of ten railroad tracks. The larger part of the traffic will be from passengers, and less from freight. It will be practicable to manage a very much larger number of passengers than could be the case if the freight traffic were predominating on the bridge, the same as it is on the connecting railroads before they reach the bridge. The number of railroad passengers on all ten roads is, at present, estimated at about twenty million per year. The ten-track bridge, it is estimated, will accommodate one hundred and twenty million passengers per year, or a traffic six times as large, but which may not be reached till the middle of the next century.

In view of the great increase of the passenger traffic on the Brooklyn bridge, the provisions for the increase of traffic over the Hudson River bridge appear to be justified.

The number of passengers on the Brooklyn bridge—

In 1884 was.....	8, 623, 200
In 1885 was.....	18, 000, 000
In 1886 was.....	24, 000, 000
In 1887 was.....	28, 000, 000
In 1888 was.....	30, 500, 000
In 1889 was nearly.....	34, 000, 000

and it is still growing, so that in 1890 it will probably reach thirty-six million passengers, or four times the number of passengers in 1884. But with all this immense traffic the Brooklyn bridge is yet very far from paying the interest on the cost of its construction.

As is well known, the Brooklyn bridge is already too small for the traffic which it has created, so to speak (for the traffic over the ferries to Brooklyn has not fallen off). The traffic grew faster than the most far-sighted man would have predicted seven years ago, when the bridge was formally opened. By similarity of conditions we are justified in assuming that the traffic over the North River bridge will increase, though probably at a smaller ratio.

It must be clear, then, that to build a bridge over the North River merely for the existing traffic, or for a little greater one, would be a great mistake from a public point of view. I go even further and claim, in the light of the experience we now have, that a bridge built only large enough for the nearest prospective traffic, and capitalized up to all it will bear, and then compelling passengers who pay for full accommodations to be packed like sardines into the cars would be a fraud, if not a crime, against the people.

And one of the best methods to prevent it is to prevent the paying of profits on fictitious cost and capital. This our bill provides for. The books of the company will be subject to governmental inspection, so that the actual cash cost of the undertaking shall be known, and the prospective profits of the company are thus limited to be regulated by the toll charges based on the cash cost.

In this way it will be possible to build, from the start, a bridge with a capacity for ten tracks, which will be sufficient, probably, for the next fifty years.

The experience with our public works bears me out in saying that the bridge can be built cheaper and in half the time by a private company than it could be built by the Government or by the cities. With proper business prudence it can be done probably for half the money. Unless built economically and with the most competent and skillful manage-

ment of its affairs, the undertaking could not be made a commercial success, as the experience with the Brooklyn bridge would indicate. The investors in the North River bridge may have to wait probably many years before they may realize a reasonable return on the capital invested, but the prospects of growing returns will not be a vain hope with careful and competent management.

An increase of business over our bridge under the provisions of our bill will have ultimately the effect of lower toll rates, and the public will therefore be sharers in the prosperity of the bridge, without being sharers of the risks and vicissitudes of the work during construction and during the development of its business.

Surveys, general plans, and estimates have been made for the entire project, as far as was possible, up to the present time. The patient work of five years and a large amount of money have been expended on the project before submitting it for the authorization of Congress. We appear before you with the earnest purpose of building the bridge. Our pride and honor are in it. We have gone through the period of ridicule and deprecation. Our aims and plans are not judged any more as visionary and impracticable; on the contrary, our work meets now with admiration and universal encouragement. Our purpose, to leave the royal Hudson River at New York City unobstructed with bridge piers, has met with unqualified approval. We have the assurances and command the confidence of large capitalists for the great expenditures of the undertaking and in our judgment and ability to carry out the work for which we ask your legislative aid. Our bona fide intentions are incorporated in the bill before you. We respectfully ask of you to put this work, the greatest yet undertaken, directly under national control and regulation. It should be a national work in the broadest and best sense of the word—a monument representative of this country's might, enterprise, and daring. The proposed World's Fair in 1892, wherever held, can only be an ephemeral affair compared with the proposed bridge, which will last for ages, for centuries. We ask for your encouragement and for national recognition, and we promise you a grand monumental work, an honor to this nation and its civilization.

EXHIBIT J.

LEGAL BRIEFS AND OPINIONS BY JOHN K. COWEN AND E. J. D. CROSS.

GUSTAV LINDENTHAL, JAMES ANDREWS, JORDAN L. MOTT, and others:

DEAR SIRs: We have carefully examined the bill authorizing yourself and others to become a corporation and construct a bridge over the Hudson River at New York City, and are prepared to answer the questions which you have presented to us concerning the power of Congress to create a corporation for the construction of a bridge over an interstate stream.

(1) Does Congress possess the power to create such a corporation?

(2) Can it authorize a corporation created by itself to construct a bridge across the Hudson River between the States of New Jersey and New York for the purpose of accommodating interstate commerce?

The answer to the first question is in the affirmative. It has been expressly decided by the Supreme Court of the United States, in the case of *McCulloch vs. State of Maryland* (4 Wheaton, 316), that Congress can create a corporation whenever such a corporation was an ap-

propriate means of carrying out any of the powers delegated to the United States Government. This is the leading case upon this subject, and has never been departed from since the date the opinion was delivered, in 1819.

The argument of Chief-Justice Marshall may be epitomized as follows: Congress is invested with great powers, among which are the following: The power to lay and collect taxes; to borrow money; to regulate commerce; to declare and conduct a war; and to raise and support armies and navies. Congress is necessarily, therefore, invested with additional authority to adopt all means which are appropriate or plainly adapted for the execution of any of the express powers with which the United States Government is clothed. That as Congress, for example, has the power of raising revenue and applying it to national purposes, this necessarily implies the power of conveying money from place to place as the exigencies of the nation might require, and of employing the usual means of conveyance, and that among those convenient means or fiscal agencies a corporation was one, and, therefore, Congress had the discretion to adopt that means; that is to say, to create a corporation for the purpose of carrying out one of the express powers of the Government. Upon this basis of reasoning the validity of the act of Congress incorporating the old United States Bank was sustained, and the power of Congress in the matter has not been doubted since this decision.

We quote a portion of the opinion of Chief-Justice Marshall, particularly appropriate to this discussion:

Although among the enumerated powers of government we do not find the word "bank" or "corporation," we find the great powers to lay and collect taxes, to borrow money, to regulate commerce, to declare and conduct a war, and to raise and support armies and navies. The sword and the purse, all the external relations, and no inconsiderable portion of the industry of the nation, are intrusted to its government. It can never be pretended that these vast powers draw after them others of inferior importance, merely because they are inferior. Such an idea can never be advanced. But it may with great reason be contended that a government intrusted with such ample powers, on the due execution of which the happiness and prosperity of the nation so vitally depends, must also be intrusted with ample means for their execution. The power being given, it is the interest of the nation to facilitate its execution. It can never be their interest, and can not be presumed to have been their intention, to clog and embarrass its execution by withholding the most appropriate means. Throughout this vast Republic, from the St. Croix to the Gulf of Mexico, from the Atlantic to the Pacific, revenue is to be collected and expended, armies are to be marched and supported.

The exigencies of the nation may require that the treasure raised in the North should be transported to the South; that raised in the East conveyed to the West, or that this order should be reversed. Is that construction of the Constitution to be preferred which would render these operations difficult, hazardous, and expensive? Can we adopt that construction (unless the words imperiously require it) which would impute to the framers of that instrument, when granting these powers for the public good, the intention of impeding their exercise by withholding a choice of means? If, indeed, such be the mandate of the Constitution, we have only to obey, but that instrument does not profess to enumerate the means by which the powers it confers may be executed, nor does it prohibit the creation of a corporation if the existence of such a being be essential to the beneficial exercise of those powers. It is, then, the subject of fair inquiry, how far such means may be enjoyed.

It is not denied that the powers given to the Government imply the ordinary means of execution. That, for example, of raising revenue and applying it to national purposes is admitted to imply the power of conveying money from place to place as the exigencies of the nation may require, and of employing the usual means of conveyance. But it is denied that the Government has its choice of means, or that it may employ the most convenient means if to employ them it be necessary to erect a corporation.

On what foundation does this argument rest? On this alone: The power of creating a corporation is one appertaining to sovereignty, and is not expressly conferred on Congress. This is true. But all legislative powers appertain to sovereignty. The original power of giving the law on any subject whatever is a sovereign power,

and if the Government of the Union is restrained from creating a corporation as a means for performing its functions, on the single reason that the creation of a corporation is an act of sovereignty, if the sufficiency of this reason be acknowledged, there would be some difficulty in sustaining the authority of Congress to pass other laws for the accomplishment of the same objects.

The Government which has the right to do an act, and has imposed on it the duty of performing an act, must, according to the dictates of reason, be allowed to select the means, and those who contend that it may not select any appropriate means, that one particular mode of effecting the object is excepted, take upon themselves the burden of establishing that exception.

The creation of a corporation, it is said, appertains to sovereignty. This is admitted. But to what portion of sovereignty does it appertain? Does it belong to one more than to another? In America the powers of sovereignty are divided between the Government of the Union and those of the States. They are each sovereign with respect to the objects committed to it, and neither sovereign with respect to the objects committed to the other. We can not apprehend that train of reasoning which would maintain that the extent of power granted by the people is to be ascertained, not by the nature and terms of the grant, but by its date. Some State constitutions were formed *before* some *since* that of the United States. We can not believe that their relation to each other is in any degree dependent upon this circumstance. Their respective powers must, we think, be precisely the same as if they had been formed at the same time. Had they been formed at the same time, and had the people conferred on the General Government the power contained in the Constitution, and on the States the whole residuum of power, would it have been asserted that the Government of the Union was not sovereign with respect to those objects which were intrusted to it, in relation to which its laws were declared to be supreme? If this could not have been asserted we can not well comprehend the process of reasoning which maintains that a power appertaining to sovereignty can not be connected with that vast portion of it which is granted to the General Government, so far as it is calculated to subserve the legitimate objects of that Government.

The power of creating a corporation, though appertaining to sovereignty, is not, like the power of making war or levying taxes or regulating commerce, a great substantive and independent power, which can not be implied as incidental to other powers or used as a means of executing them. It is never the end for which other powers are exercised, but a means by which other objects are accomplished. No contributions are made to charity for the sake of an incorporation, but a corporation is created to administer the charity; no seminary of learning is instituted in order to be incorporated, but the corporate character is conferred to subserve the purposes of education. No city was ever built with the sole object of being incorporated, but is incorporated as affording the best means of being well governed. The power of creating a corporation is never used for its own sake, but for the purpose of effecting something else. No sufficient reason is therefore perceived why it may not pass as incidental to those powers which are expressly given, if it be a direct mode of executing them.

Then follows an elaborate analysis of the meaning of the words "necessary" and "proper" in that clause of the Constitution which provides, after enumerating the express powers given to Congress, that that body shall have the power of making "all laws which shall be necessary and proper for carrying into execution the foregoing powers, and all other powers vested by this Constitution in the Government of the United States, or in any department thereof."

And the court holds that Congress is invested with the right of choosing any means that are appropriate and plainly adapted to the carrying out of any powers which are expressly given.

This decision, therefore, must be taken as settling, finally and for all time, the right of Congress to create a corporation to carry into effect powers which the Constitution has expressly conferred upon that body.

Second. The so-called commercial clause of the Constitution of the United States is found in section 8 of article 1:

The Congress shall have power * * * to regulate commerce with foreign nations, and among the several States, and with the Indian tribes.

Under this clause of the Constitution it has been expressly decided by the Supreme Court of the United States that Congress can authorize the construction of a bridge or a railroad for the purpose of accommo-

dating interstate commerce. The cases which are reported in 127 U. S., page 1, under the head of *California vs. Pacific Railroad Company*, contain the last and authoritative statement of the Supreme Court of the United States upon this subject.

In these cases the corporations authorized to construct the railroads referred to in the opinion were, it is true, State corporations invested with franchises of constructing the railroad by the Federal Government. At page 39 of the report Judge Bradley, in delivering the unanimous opinion of the court, used the following language:

If, therefore, the Central Pacific Railroad Company is not a Federal corporation its most important franchise, including that of constructing a railroad from the Pacific Ocean to Ogden City, were conferred upon it by Congress. It can not at the present day be doubted that Congress, under the power to regulate commerce among the several States, as well as to provide for postal accommodations and military exigencies, had authority to pass these laws. The power to construct or to authorize individuals or corporations to construct national highways and bridges, from State to State, is essential to the complete control and regulation of interstate commerce. Without authority in Congress to establish and maintain such highways and bridges it would be without authority to regulate one of the most important adjuncts of commerce. This power, in former times, was exerted to a very limited extent, the Cumberland or National Road being the most notable instance. Its exercise was but little called for, as commerce was then mostly conducted by water, and many of our statesmen entertained doubts as to the existence of the power to establish ways of communication by land. But since, in consequence of the expansion of the country, the multiplication of its products, invention of railroads and locomotion by steam, land transportation has so vastly increased, a sounder construction of the subject has prevailed and led to the conclusion that Congress has plenary power over the whole subject.

Of course the authority of Congress over the Territories of the United States, and its power to grant franchises exercisable therein, are and ever have been undoubted; but the wider power was very freely exercised, and much to the general satisfaction, in the creation of the vast system of railroads connecting the East with the Pacific, traversing States as well as Territories, and employing the agency of State as well as Federal corporations.

This decision, of course, finally settles the question as to the authority of Congress, under the commercial clause of the Constitution, either to construct a bridge itself across an interstate stream, "or to authorize individuals or corporations to construct" such bridges. Hence, in accordance with the opinion of *McCulloch vs. Maryland*, it necessarily follows that if Congress can build the bridge itself, it can use any means that are appropriate to that end, and among the means so appropriate a corporation is one, and it therefore can create a corporation for the purpose of constructing the bridge. Indeed, several of the Pacific railroads were constructed by Federal corporations; in other words, by companies incorporated by the act of Congress and not by the act of any State legislature. Among the corporations so created were the Union Pacific Railroad Company, by the act of 1862, 12 Statutes, 489. Under this act the individuals therein named were "created and erected into a body corporate and politic, in deed and in law, by the name, style, and title of 'the Union Pacific Railroad Company.'" By section 14 of this act the Union Pacific Railroad Company was authorized and required to construct a single line of railroad and telegraph from a point on the western boundary of the State of Iowa to its western terminus fixed by other provisions of the act; and under this section the Union Pacific Railroad constructed the bridge across the Missouri River between Omaha and Council Bluffs. The discussion of questions concerning this charter will be found in *Union Pacific Railroad Company vs. Hall*, 91 U. S., page 343. The particular question discussed, to which we wish to call your attention, will be found on pages 346, 347.

The Texas and Pacific Railway Company was incorporated by act of

Congress, approved March 3, 1871, 16 Statutes at Large, page 573. The title of the act is, "An act to incorporate the Texas and Pacific Railway Company and to aid in the construction of its road, and for other purposes." This company was incorporated by act of Congress for the purpose of constructing a railroad from Marshall, in the State of Texas, to El Paso in the same State; thence through the Territories of New Mexico and Arizona, and thence through the State of California to San Diego on the Pacific coast.

The two charters of the Texas Pacific and the Union Pacific Railroads are examined in the Pacific Railroad removal cases, found in 115 U. S., page 2. These cases decide that each of the companies were corporations created under the laws of the United States, and, therefore, were entitled to remove suits against them, under the act of Congress relating to the jurisdiction of the United States courts. The whole basis of the opinion is that the act of Congress created them Federal corporations, and being Federal corporations that a suit against them was a suit "arising under the laws of the United States," as had been held by Chief-Justice Marshall in the case of *Osborne vs. The Bank of the United States*, 9 Wheaton, 738.

The following instances of corporations created by act of Congress may also be referred to: The Northern Pacific Railroad Company, incorporated by act of July 2, 1864, 13 Stat., 365. This corporation was organized to construct a railroad from a point either in the State of Minnesota or Wisconsin, to the Pacific coast.

The Atlantic and Pacific Railroad Company was incorporated by act of Congress, July 27, 1866, 14 Stat., page 292. This corporation was created to construct a railroad from Springfield, Mo., to the Pacific coast.

The validity of all these acts has been practically sustained by the decision of the Supreme Court in the case of *Hall vs. The Union Pacific Railroad Company*, 91 U. S.; and in the Pacific Railroad cases in 127 U. S.; and as far as we know the constitutionality of this legislation of Congress, creating corporations to build railroads, has never been questioned. The decisions of the Supreme Court of the United States, and the practical construction given to the Constitution during a long series of years by Congress itself, demonstrate two propositions:

(1) That under the power to regulate commerce, Congress can construct a bridge over an interstate stream, or can construct a railroad for interstate commerce.

(2) That Congress, having the power to do this itself, can employ any agency which is appropriate to accomplish the end aimed at; that is, the construction of the bridge or the railroad, and, therefore, Congress can organize a corporation for such purpose.

Third. The whole question of the power of Congress to authorize the construction of bridges across interstate streams was examined by Justice Bradley in the case of *Stockton vs. The Baltimore and New York Railroad Company* and the *Staten Island Rapid Transit Railroad Company*, 32 Federal Reporter, page 9. Congress, by an act approved June 16, 1886, had authorized the *Staten Island Rapid Transit Railroad Company*, a corporation of New York, to construct a bridge across the Arthur Kill, the stream separating New Jersey from that part of New York known as Staten Island. The legislature of New Jersey, on April 6, 1886, had enacted a law providing as follows:

That no bridge, viaduct, or fixed structure shall be created by any person or corporation, over or in any part of the navigable waters separating this State from other States, where the tide ebbs and flows, without express permission of the legislature of this State given by statute for that purpose.

New Jersey, therefore, contended that no bridge could be built across the Arthur Kill except with her consent, and that the act of Congress, conferring the power of constructing such a bridge not only without her consent but against her protest, was invalid.

Justice Bradley, and the two circuit judges who agreed with him, held that Congress could authorize a foreign corporation not created by New Jersey to build a bridge across the Arthur Kill. He used this language, pages 14 and 15 of the report:

At all events, if Congress, in the execution of its powers, chooses to employ the intervention of a particular corporation, whether of the State or out of the State, we see no reason why it should not do so. There is nothing in the Constitution to prevent it from making contracts with or conferring powers upon State corporations for carrying out its own legitimate purposes. What right of the State would be invaded? The corporation thus employed or empowered in executing the will of Congress could do nothing which the State could rightfully oppose or object to. It may be added that no State corporation more suitable than the defendant could be empowered to build the bridge in question in this case, since one half of the bridge is in the State of New York, and the railroad of the defendant is to connect with it on the New York side. In our judgment, if Congress itself has the power to construct a bridge across a navigable stream for the furtherance of commerce among the States, it may authorize the same to be done by agents, whether individuals or a corporation *created by itself*, or a State corporation already existing and concerned in the enterprise. * * *

So that we are brought back to the question of the power of Congress to build a bridge, and whether that power is independent of the consent and concurrence of the State government, and in our judgment this question must be answered in the affirmative. The power to regulate commerce among the several States is given by the Constitution in the most general and absolute terms. "The power to regulate," as applied to a Government, has a most extensive application. With regard to commerce it has been expressly held that it is not confined to commercial transactions, but extends to seamen, ships, navigation, and the appliances and facilities of commerce, and it must extend to these or it can not embrace the whole subject. Under this power the navigation of rivers and harbors has been opened and improved, and we have no doubt that canals and water-ways may be opened to connect navigable bays, harbors, and rivers with each other or with the interior of the country; nor have we any doubt that under the same power the means of commercial communication by land as well as by water may be opened up by Congress, between different States, whenever it shall see fit to do so, either on the failure of the States to provide such communication, or whenever, in the opinion of Congress, increased facilities of communication ought to exist.

Hitherto, it is true, the means of commercial communication have been supplied either by nature in the navigable waters of the country, or by the States in the construction of roads, canals, and railroads; so that the functions of Congress have not been largely called into exercise under this branch of its jurisdiction and power, except in the improvement of rivers and harbors, and the licensing of bridges across navigable streams. But this is no proof that its power does not extend to the whole subject in all its possible requirements; indeed, it has been put forth in several notable instances which stand as strong arguments of practical construction given to the Constitution by the legislative department of the Government. The Cumberland or National road is one instance of a grand thoroughfare projected by Congress, extending from the Potomac to the Mississippi; after being nearly completed it was surrendered to the several States within which it was situated.

The main stem of the Union Pacific commences at Council Bluffs, in Iowa, and crosses the Missouri by a bridge at that place, erected under the authority of Congress alone.

In 1862 a bridge was authorized by Congress to be constructed across the Ohio River, at Steubenville, between the States of Virginia and Ohio, to be completed, maintained, and operated by the railroad company authorized to build it, and by another company named, "anything in any law or laws of the above-named States to the contrary notwithstanding."

Still it is contended that although Congress may have power to construct roads and other means of communication between the States, yet this can only be done with the concurrence and consent of the States within which the structures are made. If this is so, then the power of regulation in Congress is not supreme, it depends on the will of the States. We do not concur in this view. We think that the power of Congress is supreme over the whole subject, unimpeded and unembarrassed by State

laws or State liens; that in this matter the country is one, and the work to be accomplished is national, and that State interests, State jealousies, and State prejudices are not required to be consulted. In matters of foreign and interstate commerce there are no States.

Judge Wallace, of the United States circuit court for the district of New York, held the same view in the case of *Decker vs. The Baltimore and New York Railroad Company and others*, 30 Federal Reporter, page 723.

Fourth. We assume, of course, that no one questions the right of Congress to exercise the power of eminent domain, or to authorize a corporation to exercise that power in any case where it can employ a corporation as one of the agencies to carry into execution the powers vested in Congress by the Constitution of the United States. This point has been definitely settled by the case of *Kohl vs. United States*, 91 U. S. 367.

The conclusions, therefore, may be summed up as follows:

(1) That Congress has express constitutional power to regulate commerce among the several States, and that by the decision of the Supreme Court of the United States the possession of this power enables the United States Government to either itself construct, or authorize others to construct, bridges across interstate streams.

(2) That Congress, having the express power to authorize the construction of a bridge, can employ any appropriate means for the execution of that power, and there can be none more appropriate than the creation of a corporation for that purpose. As in the case of the United States Bank, it may be said that the creation of a body corporate to build such an improvement as that you propose across the North River, is certainly a most appropriate means for carrying out the express power of regulating commerce.

(3.) In this instance, Congress is the only body that can act, as New Jersey has by statute prohibited the construction of the bridge across the Hudson River.

(4.) That, as Congress can create a corporation and authorize it to construct a bridge, it can, of course, vest the corporation with full and complete power of eminent domain, the exercise of which is essential in any corporation that would attempt such a stupendous work as that of bridging the North River.

We have not, in this opinion, referred to the numerous decisions of the United States Supreme Court upon the subject of regulating interstate commerce, having thought it best to confine ourselves to the late opinions of that court upon the power of Congress to authorize the construction of bridges.

Nor have we thought it worth while to refer to the National Banking Act, under which Congress created national banks in every State of the Union, because the whole subject was fully discussed in the opinion of Chief-Justice Marshall, from which we have quoted so largely.

We beg to say, in conclusion, that we have examined the bill which you have submitted to Congress, and see nothing in it whatever which is not clearly within the power of Congress under the commercial clause of the United States Constitution.

Yours, respectfully,

JOHN K. COWEN.
E. J. D. CROSS.

EXHIBIT K.

REMARKS AND OPINION BY CHARLES F. MACLEAN.

GUSTAV LINDENTHAL, JAMES ANDREWS, JORDAN L. MOTT, THOMAS F. RYAN, and others.

SIRS: The questions on which my opinion is asked in connection with the bill now pending before Congress providing for a bridge across the North River, between the States of New York and New Jersey, and for that purpose creating a corporation with the right of obtaining the necessary lands by process of condemnation, may be stated as:

- (1) Has Congress power to authorize the construction of the bridge?
- (2) Have the United States such right of eminent domain that Congress can authorize the compulsory condemnation of property? and,
- (3) Can Congress create a corporation for the purposes of the bridge?

I.

The first of these questions has lately been passed upon respecting the Staten Island Bridge, likewise between the States of New York and New Jersey.

In *Stockton vs. Baltimore and New York Railroad Company*, 32 Fed. R., 9, Bradley, J., there says:

In our judgment, if Congress itself has the power to construct a bridge across a navigable stream for the furtherance of commerce among the States, it may authorize the same to be done by agents, whether individuals, or a corporation created by itself, or a State corporation already existing and concerned in the enterprise. * * * So that we are brought back to the question of the power of Congress to build a bridge, and whether that power is independent of the consent and concurrence of the State government; and, in our judgment, this question must be answered in the affirmative.

Judge Bradley discusses the subject at considerable length, placing the right upon the constitutional powers of the Government to provide for the common defense, to establish post-roads, and to regulate commerce among the several States, more especially the latter. He adds:

We think the power of Congress is supreme over the whole subject, unimpeded and unembarrassed by State laws or State lines; that in this matter the country is one, and the work to be accomplished is national, and that State interests, State jealousies, and State prejudices are not required to be consulted. In matters of foreign and interstate commerce there are no States.

The whole of that case is so pertinent to the subject in hand, that instead of extended extracts, I do better to refer you to the original report.

In *California vs. Pacific Railroad*, 127 U. S. 3, it is held that "Congress has authority, in the exercise of its power, to regulate commerce among the States; to construct, or authorize individuals to construct, railroads across the States and Territories of the United States."

Bradley, J., citing laws creating Pacific Railroad, says:

It can not at the present day be doubted that Congress, under the power to regulate commerce among the several States, as well as to provide for postal accommodations and military exigencies, had authority to pass these laws. The power to construct, or to authorize individuals or corporations to construct, national highways and bridges from State to State is essential to the complete control and regulation of interstate commerce. Without authority in Congress to establish and maintain such highways and bridges it would be without authority to regulate one of the most important adjuncts of commerce. * * * A sounder consideration of the subject has prevailed and led to the conclusion that Congress has plenary power over the whole

subject. Of course, the authority of Congress over the Territories of the United States, and its power to grant franchises exercisable therein, are, and ever have been, undoubted. But the wider power was very freely exercised, and much to the general satisfaction, in the creation of the vast system of railroads connecting the East with the Pacific, traversing States as well as Territories, and employing the agency of State as well as Federal corporations.

II.

The right of expropriation of private property rests upon the principle of sovereignty; that is, the right to resort to the whole resources of the nation for the common benefit, and not upon the final right of property, which resides in the States themselves. The leading case is *Kohl vs. United States*, 91 U. S. 367, which arose from proceedings for condemnation of a site for a court-house, etc., at Cincinnati, under Laws 1872, Stat. at Large, 39, 352, 523:

Strong, J.:

It has not been seriously contended during the argument that the United States Government is without power to appropriate lands or other property within the States for its own uses, and to enable it to perform its proper functions. Such an authority is essential to its independent existence and perpetuity. These can not be preserved if the obstinacy of a private person, or if any other authority can prevent the acquisition of the means or instrument by which alone governmental functions can be performed. The powers vested by the Constitution in the General Government demand for their exercise the acquisition of lands in all the States. These are needed for forts, armories, and arsenals; for navy-yards and light-houses; for custom-houses, post-offices, and court-houses, and for other public uses. The right (of eminent domain) is the offspring of political necessity; it is inseparable from sovereignty unless denied to it by its fundamental law. But it is no more necessary for the exercise of the powers of a State Government than it is for the exercise of the conceded powers of the Federal Government. That Government is as sovereign within its sphere as the States are within theirs.

When the power to establish post-offices and to create courts within the States was conferred upon the Federal Government included in it was authority to obtain sites for such offices and for court-houses, and to obtain them by such means as were known or appropriate. The right of eminent domain was one of those means well known when the Constitution was adopted and employed to obtain lands for public uses. Its existence, therefore, in the grantor of that power ought not to be questioned.

In the case of *Darlington vs. United States*, in the supreme court of Pennsylvania, reported in 82 Pennsylvania State Report, page 382; the pending case being one for the condemnation of property in the city of Pittsburgh, for the erection of a building to be used for a court-house, custom-house, post-office, United States marshal's office, and other Government offices.

Mr. Justice Paxson, delivering the opinion of the court, October 23, 1876, says, *inter alia*, as follows:

The right of the United States to take private property for public use is too well settled to be now disputed. Of the numerous cases upon this subject it is sufficient to refer to *Kohl vs. United States*, which is believed to be the last, and will be found reported in the American Law Register for September, 1876. The opinion of the Court was delivered by Mr. Justice Strong, who said, "The right of eminent domain is inherent in all Governments by virtue of their sovereignty. For all purposes required by the Constitution this right exists in the United States independently of any consent of the State in which the property lies." The right itself arises from necessity, of which necessity the sovereignty taking the property must be the judge, and is qualified only by the duty of making compensation to the owner.

The case of *United States vs. Jones*, 109 U. S., 513, arose upon the act of March 3, 1875, providing for taking lands, etc., for a canal, paying damages "which may have been ascertained in the mode provided by the laws of the State" where the land lay.

Field, J.:

The power to take private property for public uses, generally termed the right of eminent domain, belongs to every independent Government. * * * The provision found in the fifth amendment to the Federal Constitution and in the constitution of

the several States for just compensation for the property taken, is merely a limitation on the use of that power.

In *Van Brocklin vs. State of Tennessee*, 117 U. S., 151, Gray, J., said :

So the United States, at the discretion of Congress, may acquire and hold real property in any State, whenever such property is needed for the use of the Government, in the execution of any of its powers, whether for arsenals, fortifications, light-houses custom-houses, court-houses, barracks, or hospitals or for any other of the many public purposes for which such property is used ; and when the property can not be acquired by voluntary arrangement with the owners, it may be taken against their will by the United States, in the exercise of its power of eminent domain, upon making just compensation, with or without a concurrent act of the State in which the land is situated.

In *Fort Leavenworth Railroad vs. Lowe*, 114 U. S., 525, Field, J., said :

But not only by direct purchase have the United States been able to acquire lands they needed without the consent of the States, but it has been held that they possess the right of eminent domain within the States, using those terms, not as expressing the ultimate dominion or title to property, but as indicating the right to take private property for public uses when needed to execute the powers conferred by the Constitution ; and that the General Government is not dependent upon the caprice of individuals or the will of State legislatures in the acquisition of such lands as may be required for the full and effective exercise of its powers. * * * The right to acquire property in this way by condemnation may be exerted either through tribunals expressly designated by Congress, or by resort to tribunals of the State in which the property is situated, with her consent for that purpose. Such consent will always be presumed in the absence of express prohibition.

This right of the General Government is fully recognized by the State of New York. The court of appeals of that State, *In re United States*, 96 N. Y., 227, sustains the right and holds that it may be exercised by the United States either in the Federal courts or in the State courts.

Congress has from time to time passed a number of acts for expropriating lands. Among them may be mentioned that of 1879 for the improvement of the Tennessee River, and that of 1880 for reservoirs in Minnesota, which adopt the State practice by mere reference thereto.

III.

The power of the United States to create corporations to carry out the powers granted by the Constitution was settled by *McCulloch vs. Maryland*, 4 Wheat., 407.

In that case, which involved the constitutionality of the Bank of the United States, Chief-Justice Marshall examines the subject at considerable length, and sustains the power as incidental to the powers specifically granted. The case has always been regarded as of the highest authority. In it he says :

Throughout this vast Republic, from the St. Croix to the Gulf of Mexico, from the Atlantic to the Pacific, revenue is to be collected and expended, armies are to be marched and supported. The exigencies of the nation may require that the treasure raised in the North should be transferred to the South ; that raised in the East conveyed to the West, or that this order should be reversed. Is that construction of the Constitution to be preferred which would render these operations difficult, hazardous, and expensive ? * * * The Government which has a right to do an act and has imposed on it the duty of performing that act, must according to the dictates of reason be allowed to select the means ; and those who contend that it may not select any appropriate means that one particular mode of effecting the object is effected, take upon themselves the burden of establishing that exception. * * * The power of creating the corporation, though appertaining to sovereignty, is not, like the power of making war, or of levying taxes, or of regulating commerce, an independent power which can not be implied as incidental to other powers, or used as a means of executing them. It is never the end for which other powers are exercised, or a means by which other objects are accomplished. * * * The power of creating a corporation is never used for its own sake, but for the purpose of effecting something else. No sufficient reason is therefore perceived why it may not pass as incidental to those powers which are expressly given, if it be a direct mode of executing them.

The case of Railroad Company *vs.* Peniston, 18 Wall., 5, involved the corporate powers of the Pacific Railroads.

Strong, J., referring to use of roads for postal and military purposes and other provisions of charter, says :

They all look to a purpose of Congress to secure an agency competent and under obligation to perform certain offices for the General Government. Notwithstanding this, the railroad and the telegraph lines are neither in whole nor in part the property of the Government. Admitting, then, as we fully do, that the company is an agent of the General Government, designed to be employed and actually employed, in the legitimate service of the Government, both military and postal, does it follow, etc.

Swayne, J., says that the road is a "national instrumentality."

Bradley, J., after quoting Chief-Justice Marshall, in the *McCulloch* case, says :

Now I think it can not be doubted at the present day, whatever may have been contended in former times, that the creation of national roads and other means of communication between the States is within the power of Congress in carrying out the powers of regulating commerce and in providing for the national defense, and for military operations in time of war. And no one will contend that if the creation of a corporation is a suitable agency and means of carrying on the definite operations of the Government, the creation of a corporation is equally apposite as an agency and means of carrying out the objects above mentioned.

Among other instances of the exercise of this power are to be mentioned the laws creating the Pacific Railroad Companies. Some of these acts adopted State corporations and extended their powers; but others created corporations which had not existed before. These acts have been sustained by the Supreme Court.

See cases already cited, and also *Pacific Railway Removal Cases*, 115 U. S., 18, 19.

I have forbore citing any of the minor cases. It is to be noted that these decisions, with a single exception, are recent, and represent the opinion of the Supreme Court at the present day, and were in most cases pronounced by judges who are still upon the bench.

Under the construction of the powers of Congress, given by the Supreme Court of the United States, all the questions stated at the outset must be answered, in my opinion, in the affirmative.

I am, sir, your obedient servant,

CHARLES F. MACLEAN.

EXHIBIT L.

REMARKS BY M. H. HOUSEMAN.

The purpose of the bill before you is to authorize the construction of a bridge over the Hudson River at New York City, with proper approaches and appurtenances, and the formation of a company with its necessary power to build, operate, and use the same.

The unusual magnitude of the work will require a very large amount of money, and investors will have to wait perhaps some ten or twelve years before revenue can be derived from the operation of the bridge.

The risks and unavoidable delays by reason of the peculiar character and extent of this undertaking will undoubtedly be much greater than those met with in the construction of an ordinary bridge.

One of the most important requisites to be complied with to obtain the needed capital for such a work is that the company should possess clear legal rights to construct and operate the bridge, so that the risks

of the undertaking should not be increased by any complications as to its charter powers. Past experience and serious losses have taught investors to avoid such investments, where the rights and powers of the company are doubtful and uncertain, and which may serve only to incur upon them years of litigation to establish their validity and interpretation by the courts.

The structure is to extend over and across a navigable river, which is under the jurisdiction of Congress, and its termini will be in two separate States. The laws of one of the States, namely, New Jersey, expressly prohibit the bridging of the Hudson River from or into that State, except by the special consent of the State, to be expressed through its legislature, which may or may not be given, or if so given it may be so qualified as to virtually prevent the building of that part of the structure so extending into that State.

It may be stated that bridges over navigable streams elsewhere forming the boundary between two States have been erected merely under license acts from Congress, but it will be found that in all such cases the formation of the company was made feasible under the general railroad laws of the States. But there is no law adequate in either the States of New York or New Jersey under which a bridge company can be formed with authority to build the proposed structure, and even if such a law could be enacted by these respective States the effect thereof would be limited within the State, and by the State line somewhere in the Hudson River, the exact location of which is itself said to be in dispute. The charter and authority of a company thus made up would also be subject to modification or repeal from year to year by either State independently of the other. Thus, through the influence of rival interests, or, perhaps, by reason of conflict between political parties, the legal stability of the company's affairs might be constantly endangered.

We are not without good grounds for this apprehension, and can speak from experience that investors could not well be induced to trust their money in an undertaking which might be subjected to interference from two independent and rival sovereign powers.

The traffic over the proposed bridge will be wholly interstate; the administration of its affairs throughout from end to end should be uniform, and subject only to one controlling and regulating authority, which should be superior to that of either State, and can only properly be lodged by the Congress of the United States in the National Government.

The ten more railroads which may use the proposed avenue into New York City derive their rights, powers, and privileges from different States, and their common regulation and control in the use of the bridge can best be effected under the Government of the United States.

It is obvious that if a company were formed by the consolidation of State corporations, each subject to different and incongruous laws within the two separate and respective States, it would be further necessary to supplement this consolidation by a license act from Congress, with authority to construct the bridge.

The life and existence of a company thus formed would depend upon a patch-work legislation, with uncertain paternity, and would be lacking in merit and stability. With such an aggregation there would indeed be good reason for apprehension of conflict and disagreement between the States, arising out of the operation, regulation, and control of the legal affairs of the company. Such a company could not with confidence appeal to capital for the stupendous undertaking here proposed.

After several years of patient labor in connection with this project,
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and after frequent consultations with financial interests, we deem it but proper here to say that we have found men with large capital, as well as representatives of financial institutions, to be unwilling to embark with their money into an enterprise of such magnitude unless full authority to construct and operate the same be obtained through a national charter from Congress.

The bill here submitted for your approval provides, however, that the company in the exercise of its necessary power to acquire property by lawful appropriation shall do so under the laws of the respective States, and shall make proper compensation therefor, and that the amount of such compensation is to be ascertained according to the laws and in conformity with the practice of the courts of the State within which the said property is located.

The property of the company is likewise made subject to local taxation for State, county, and municipal purposes.

In part return for the grant by Congress, the proposed act provides that the mails of the United States shall pay no toll over the said bridge, also that the United States shall have the right of way thereon free of charge for postal telegraph purposes.

The bridge thus becomes a post-road in a much wider sense than any heretofore constructed. It becomes a post-road on which the United States Government has free right of way. The mails from and to New York City and the greater part of New England will pass over this mail route, which, without question, will become the most important in the world. The bridge will be for the greater safety and convenience of the United States mail as much as for anything else. This of itself should cause the structure to be wholly under Government control. In addition it will form a military road, the only one by which, without delay, rapid communication will be possible between New England, New York City, and the country along the Atlantic coast, and this is a further reason for Governmental control and regulation of the structure.

That the Congress of the United States has full constitutional power for the creation of the proposed corporation, and for authorizing the work as proposed, has been well shown by my colleagues in the legal briefs submitted to you.

EXHIBIT M.

REMARKS OF JAMES ANDREWS TO COMMITTEE.

About a year and a half ago I was in England and took occasion to go up to the site of the Forth bridge, about 10 miles out of Edinburgh. The engineer of the bridge, Mr. (now Sir Benjamin) Baker, was with me. In going over the work, huge and overwhelming in appearance, he remarked to me: "You have some big things in the United States, but you have nothing as big as this bridge." I happened to have a lithograph of our proposed Hudson River bridge in my pocket, and handing it to him, I jokingly remarked, "We are just getting ready for a bigger bridge than yours, and when we are done with it, we may warm up to something that will really astonish you." The project, now before your committee, was enough to astonish the engineer of the Forth bridge. It is a clean jump from spans of 1,700 feet in his bridge to one of nearly 3,000 feet in our proposed bridge, flanked by spans of 1,500 feet each. The Forth bridge has only two tracks, ours will have ultimately ten tracks. The Forth bridge cost \$14,000,000, is used only

by three railroads, extending about 200 miles north into Scotland. It was built to save about 25 miles of distance. Our bridge with approaches and terminals may cost \$40,000,000, but if it should cost more, it will yet be cheap as compared with the Forth bridge. If the cost of our bridge were equally divided among the ten railroads that will cross it, it would be about \$4,000,000 per railroad. This is not enormous when you know that the Pennsylvania Railroad Company has spent about \$5,000,000 on its Philadelphia station, and upwards of \$7,000,000 to get through Baltimore, and like sums in other large cities. Every railroad company is obliged to continually expend large sums of money for improvements and terminals, as the population of the country increases. Though the interest and returns on the capital so invested are sometimes slow and inadequate, yet these are risks connected with all such work. The country at large always profits from them.

I have been associated with Captain Eads in all his large engineering works, and if he were alive he would undoubtedly have been connected with this work before you. It appeals to the admiration of all enterprising men, to men who love grand subjects and can deal in grand affairs. If you will consider for a moment the dimensions of this work, it will show you the boldness and admirable conception of it. As a man of practical affairs, and with my large and long experience of engineering subjects, I am glad to say that the project has been prepared with a thorough practical and theoretical knowledge of the problems to be met with. I have every confidence in Mr. Lindenthal's ability to build and direct this work, and I have associated myself with him, together with his other friends, to aid him with all my power to carry out this undertaking. Money can not be obtained now-a-days for mere speculative schemes. A project must be fully worked out and stand the test of criticisms from experts of technical, legal, and financial issues and subjects. I know of no other large project which was half so well prepared as this one is before legislation was obtained for it.

This bridge should not be a mere utility structure, with perhaps some timber trusses hung up to cables from skeleton towers, over which trains would be obliged to creep; it should be just what the plans before you show it to be, a grand monumental work, correct in its architectural proportions, inspiring in its magnificent dimensions; it should be so strong that the heaviest express trains can run over it on all ten tracks at the same time at full speed; there should be no slacking up of trains; it should be built to endure for centuries, and of such architectural harmony that it will remain a model of what such a bridge should be for all time to come, as the Cathedral of Cologne is a model, and will remain one to the remotest times, of the inspiring and noble architecture which it represents.

This work is more than a mere bridge for running trains over; it is to represent the highest development of the art of bridge building of our time; it is to represent our enterprise, our civilization, our wealth; it will forever exact admiration and respect for this country from all the rest of the world.

EXHIBIT N.

REMARKS BY SAMUEL REA, ENGINEER.

I feel honored in having the privilege of making some suggestions to the committee on the subject of the North River bridge, and in which I am associated with Mr. Lindenthal. When he first showed me his plans in the summer of 1885, I was somewhat doubtful as to the feasibility of such a large bridge from a business point of view. The plans provided then for only four railroad tracks, but this, of itself, was such a daring innovation for a long span that it seemed as if it could not be realized for many years to come. Five years have elapsed, and the plans are now arranged for ten tracks. I may say that I have been urging this increase of tracks on Mr. Lindenthal, in our discussion of the plans, since my return from England three years ago. I went there to study, among other things, the railway terminal facilities of London and of other English and continental cities. I hoped to be able to aid Mr. Lindenthal, who advised me to pay particular attention to this question of terminals abroad. I have recorded my views on the subject in a book, "The Railways Terminating in London," and I may say that the statistics collected in the same have been instructive to many of our railroad managers.

This country has only made a beginning in the construction of large terminal railroad stations. We have none that will compare in size, in comfort, and in convenience with the largest railroad stations abroad. We have no adequate conception yet in this country of the possibilities of the suburban traffic, and have not given the same attention to its development as it has received in foreign countries. Thus, the South Eastern Railway in England is not a large railway in point of mileage, having in all only 369 miles of double track, yet it owns two of the largest passenger terminal stations in London, Charing Cross and Cannon street. The road expended \$15,000,000 through the city, or at the rate of \$1,750,000 per mile of track; whereas the cost of our proposed North River bridge will hardly exceed \$1,000,000 per mile of track, including bridge, terminal station, and right of way. The bridges over the Thames approaching Cannon street and Charing Cross stations have recently had their capacity doubled. The other London stations show similar great cost, and costly additions are constantly being made to accommodate the growing traffic. Liverpool street station, terminus of the Great Eastern Railway, is now being enlarged, and when completed will have six main tracks into it, and all under ground.

From my experience and study I feel justified in expressing the opinion that the proposed North River bridge should not be for less than ten railroad tracks, although six may be enough to commence with. The ten tracks may be needed within three years after the structure would be opened for traffic. At the rate of one train every three minutes on each track, in and out, the number of trains would only be one hundred, in or out, per hour, or at the rate of about twenty thousand passengers, in or out, per hour for ordinary occasions. This is not an extravagant estimate for the morning and evening hours, and yet it shows the necessity of providing for ten tracks if all the railroads are to be benefited by the proposed bridge. It is quite likely that the bridge will lead to the building of numerous suburban lines from the near settlements in New Jersey.

A bridge at New York City is such a great necessity that it would have been built long ago if the United States Government had not jealously watched over the sacredness of the Hudson River as a part of the

harbor of New York and prevented its desecration with bridge piers. Submarine tunnels seemed to be the only solution, but they are not in favor either with the railroads or with railroad passengers. They are expensive to maintain, and disagreeable to the passengers who would probably prefer crossing on the ferries to trusting themselves on slow trains running through damp and chilly submarine tunnels.

Bridges with one or more piers have been proposed, but such schemes have met with popular disapproval and opposition from the navigation interests. Not until Mr. Lindenthal presented his plans for a single-span bridge was there a likelihood of obtaining governmental authority for building a bridge at all. But first of all, it was necessary to show that a single-span railroad bridge of nearly 3,000 feet was feasible. This Mr. Lindenthal has done. His professional practice, his experience, his attainments fitted him for it. No engineer doubted the feasibility of a long-span suspended bridge, but the question was, could it be made serviceable for the requirements of modern railroads, for the heavy concentrated loads of huge locomotives and cars at high speed on multiple tracks? Unless the bridge were designed to fully satisfy these severe conditions it would be useless to the railroads, and the money for it could not be obtained. Many were the rebuffs experienced by Mr. Lindenthal and his friends; many were the sneers at the so-called visionary idea of bridging the broad and deep North River without a pier. But now the project is on a sound and firm basis, has the endorsement of practical and experienced men of affairs, and of great capitalists, and is merely waiting the authority from Congress to be built as speedily as the gigantic nature of the work will permit.

EXHIBIT O.

REMARKS BY ALEX. D. ANDERSON, ON THE PUBLIC NECESSITY AND IMPORTANCE OF THE BRIDGE.

Mr. Chairman and gentlemen of the committee: After the able speeches by Representatives Bayne, McAdoo, Cummings, Belden, and other gentlemen, on the public importance of the proposed bridge, there is very little left for me to say on the subject. I will, however, invite your attention to a few facts which may be of interest.

The project is of national importance, for it is a grand interstate trunk line, which will supplement and prolong to New York City, near its hotel center, the ten great railway systems which, with their various tributary lines, first intersect the surrounding States, the South, the West, and great interior, and then converge at Jersey City with the Hudson River as a heretofore insuperable barrier in their pathway, unable to enter the great metropolis.

It is in national importance on a level with the Union and Central Pacific Railways, the Nicaragua Ship Canal, the improvement of the Mississippi River, the improvement of New York Harbor, and other great public works.

It is, indeed, a remarkable fact, and I may add a discredit to American enterprise, that passengers who can come in comfort and luxury all the way across the continent from San Francisco, from New Orleans, and the Gulf ports, and even from the City of Mexico, without change of cars to Jersey City, have there, within sight of the greatest American city, to halt and disembark and submit to the annoyances and dangers of fog, ice, and collisions, in crossing the Hudson by ferry. How great these annoyances and dangers are can best be appreciated

by referring to the files of the New York daily papers during the past two years. I find in the New York Herald of December 8, 1888, a graphic description of the dangers passengers from Philadelphia, Washington, and the South, on their way to New England, were subjected to in the middle of the night in being ferried from Jersey City around lower New York and then up the East River. I will quote briefly as follows:

Upward of fifty lives were in jeopardy in the annexed district shortly before midnight last night, and in fact they only escaped by the barest miracle from a most direful fate.

The steam-boat *Maryland*, the transfer boat of the New York, New Haven and Hartford Railroad, caught fire at ten minutes past 11 o'clock, just after she had made fast to her slip at the railroad wharf at Port Morris, in the Harlem River. On board of the boat was the Washington express, which is transferred every night from the Pennsylvania Railroad yards at Jersey City by the *Maryland* to the New Haven road, whence it proceeds to Boston.

The train was made up of two sleepers, one of them named the Magenta, a passenger coach, and a baggage car. In the two sleepers, the porters say, there were about fifty passengers, both men and women, all of whom were sleeping entirely unconscious of the danger that was soon to encompass them. * * *

The scene that ensued was a most thrilling one. Already the roofs of both cars were on fire. The men and women in the berths, realizing that they had no time to spare, were tumbled out, and, without waiting to dress or even pick up hastily any of their garments or valuables, fled pell-mell for the platforms. They jostled and fought in the narrow aisles in their frenzy.

Last December, during the terrible fog which overspread New York City and Harbor, the traveling public were again subjected to a thrilling experience in crossing from Brooklyn to Jersey City on the Annex boat No. 1, of the Pennsylvania line. The New York World of December 21, 1889, thus describes the adventures of this transport:

Annex boat No. 1, of the Pennsylvania Railroad line had an eventful experience while trying to make a trip from Brooklyn to Jersey City. She left her pier on the Brooklyn side about 4 o'clock with one hundred and fifty passengers. About an hour after she had left her slip she met a canal-boat and there was a collision. The shock frightened the passengers and there was a wild rush for life-preservers. Every one who could do so wrapped himself in one of the cork bags. The collision did not have a serious effect on the trim little Annex, and she continued her wandering about the East River, while the passengers, attired in life-preservers, were discussing the question of another collision. The second collision came, and again the passengers were thrown into a state of fear. The force of the second collision drove the Annex boat against a pier, and the deck hands thought it best for the safety of the passengers to tie her up and keep her there until the fog raised. The pier was at the foot of Jackson street, on the East River. The frightened passengers left the boat and huddled together on the pier.

It was the intention of the captain of the Annex to lay up at Jackson street pier, but another vessel wandered along in the direction of the pier and crashed into the Annex. The force was sufficient to break the ropes which had secured the Annex to the pier and again she was adrift. She was completely at sea, and a tug-boat attempted to tow her around the Battery. Again she came into collision with another vessel and the tug-boat was compelled to draw off. The Annex managed to guide her way around the Battery, but while she was heading for the Jersey shore she had the misfortune to meet another vessel in the North River, and she received another bump.

The little Annex kept up her pluck, however, and, despite her adventures, paddled into her Jersey City slip at fifteen minutes to 9 o'clock, four hours and forty-five minutes after she had started from Brooklyn.

Only a few weeks later another fog over the North River jeopardized the lives of passengers seeking to cross by ferry. I quote as follows from the New York Tribune of February 27, 1890:

In the closing hour of the fog of yesterday morning two ferry-boats in the North River narrowly escaped a disastrous collision. The Hoboken Ferry Company's boat *Montclair* runs between Barclay street and Hoboken, and the Pavonia Ferry Company's boat *Erie* travels between Chambers street and Jersey City. At 7.30 a. m. the *Montclair*, carrying only fifty people, was going to Hoboken, while the *Erie*, crowded with passengers, was on her trip to New York. At this time the fog was so dense that it was impossible to discern objects at a distance of more than 30 yards. The

Montclair had nearly reached midstream when Captain St. John saw the head of a large craft start up with ghost-like suddenness on the *Montclair's* port side. The frightened passengers on the *Montclair* had barely time to scramble out of the cabins when the *Erie* crashed into the *Montclair's* paddle-wheel, smashing the box and breaking away a part of the railing. In the meantime the wildest panic prevailed among the *Erie's* four hundred passengers. Women screamed and fainted, while men rushed wildly from end to end of the boat, as if temporarily deprived of reason. Some even made attempts to jump into the river, but they were held back by those around them.

These are but illustrations of the frequent discomforts and dangers passengers are subjected to at a place which, above all others in the United States, should be supplied with the most improved methods of railway transportation. I say "above all others" for about twenty million passengers are annually compelled to cross the Hudson at this point, and the number is rapidly increasing.

The whole country from East to West and North to South is, so to speak, bridged over with railways to the extent of over 160,000 miles, except one single span across the Hudson only half a mile in length. This serious defect leaves a dangerous gap between the National Capital and the great commercial metropolis, interfering at times with the business of the Government by delaying mails, and is liable also to check the speedy movement of troops in case of a riot or other great public emergencies. It leaves a river barrier to be surmounted by the vast throng of passengers who daily travel back and forth between Baltimore, Philadelphia, New York, and Boston, and enlarging the circle between the various sections of the whole country.

The bridge is, then, an interstate project in its broadest and fullest meaning, a national work in all except its financial features, which burden private capital is ready to assume. It is, in brief, in its public importance the bridge of the nation, and of all the States—a project which it will be admitted ought to be under the supervision of the General Government. The reasoning which John C. Calhoun applied, in 1845, in a speech at Memphis, to the improvement of the Mississippi River, is equally applicable to the subject under consideration. He said:

The invention of Fulton has, in reality, for all practical purposes, converted the Mississippi with all its tributaries into an inland sea. Regarding it as such I am prepared to place it on the same footing with the Gulf and Atlantic coasts, the Chesapeake and Delaware Bays, and the lakes in reference to the superintendence of the General Government over its navigation. It is manifest that it is far beyond the power of individual or separate States to supervise it.

The proposed bridge, with its ten or more tributary railroads is, in this respect, not unlike the great river system, and its supervision and control is equally beyond the power of individual States.

EXHIBIT P.

EXTRACTS FROM PRESS COMMENTS.

The following extracts from lengthy reviews and editorials on the bridge described above, and forming the subject of bill H. R. 3886, will be of general interest:

[New York Sun, January 18, 1888.]

Of all the plans to throw an iron highway across the Hudson River the most stupendous which has yet been suggested is by the men who have selected for their points of anchorage Hoboken and a spot on the New York side near Fourteenth street. It is the greatest in engineering features, because it involves the solution of problems which no engineer has so far attempted to solve, and it is greatest in financial aspects, because the total cost is placed between \$37,000,000 and \$50,000,000. How vast this is one may appreciate upon reflecting that the great Brooklyn bridge cost only \$15,-

000,000, including the purchase of property. * * * Should the plan ever be carried into effect the bridge would be the bridge of the world, for it would be longer, higher, and larger for traffic than any other bridge now existing or proposed.

This scheme was first formally presented to the public at a meeting of the American Society of Civil Engineers by Gustav Lindenthal, an engineer who has studied the North River bridge problem for a long time, and has made surveys, soundings, and complete examinations. The Engineering News, commenting upon the paper which Mr. Lindenthal read before the society, thus refers to the thought of impossibility which is apt to rise in the mind of almost any layman:

"The grandeur of the project is almost appalling, creating at first sight a natural feeling that the chance for its construction must be small. But this is an age of great enterprises and of superabundant capital for anything which it can be shown will pay, either directly or indirectly. We think that there is abundant reason to believe that such a bridge as that proposed would pay even now, while the engineering difficulties are certainly less formidable for the resources of to-day than were those which confronted the St. Louis, East River, and many other bridges when their construction was begun."

As to the probability of this bridge being a safe investment for superabundant capital, the figures presented by Mr. Lindenthal afford an emphatic affirmative answer.

[New York Times, December 25, 1888.]

Two considerations make it more likely than ever that we shall have a bridge across the Hudson into this city before the century closes. One is the reduced cost of such undertakings resulting from inventions and improved methods of manufacture; the other is the economy it presents over a number of crossings above or below water. * * * An engineer of Pittsburgh, who makes bridges a specialty, has succeeded in gaining the ear of capitalists, and his calculations meet with respectful consideration from those who ought to know. * * *

The picture of this greatest of all wonders of bridge-making offers much the same beauty of curve in the main span as the East River bridge, and more grace of outline in the towers.

* * * For this tremendous undertaking capitalists have been found; the permission of the Government for its erection over our great water-way has been asked; there seems no reason to doubt that it can and eventually will be built. Yet if it were begun already, the growth of passenger and freight traffic east and west across the Hudson at New York is so rapid that the existing facilities will have to be doubled before the bridge could be prepared to receive trains.

[The Morning Post, London, England, August 25, 1888.]

It takes a good deal to startle the Americans, but New York does seem to have been fairly startled by a project which, to use a sporting phrase, beats all previous records of bridge construction. Mr. Gustav Lindenthal, bridge builder, of Pittsburgh, Pa., proposes to construct an enormous suspension bridge, for railway traffic and other purposes, across the Hudson River between New York City and the north New Jersey shore. The bill has been introduced in both Houses of Congress.

[From the Brooklyn Eagle, January 21, 1890.]

Perhaps it was thought that the science of bridge building had reached its highest development in the graceful structure which rose to view beneath the hand of Roebling, but, as a matter of fact, the Brooklyn highway was no more in advance of what had preceded it than the proposed North River bridge, if successfully completed, would be in advance of our own magnificent span. The need of closer communication between New York City and the Jersey shore is a subject which has long been agitated, and now there has arisen a company which talks of meeting the demand by constructing the greatest bridge in the world. What is equally to the point the plan may be deemed to be practicable, inasmuch as it was designed by an engineer of international reputation, and meets with the indorsement of the foremost engineers. * * *

The dimensions of the proposed structure are so conspicuously in advance of those which mark the proportions of the Brooklyn highway, that we can not fail to admire the daring of the genius which has planned the work, any less than we can hope to see it brought to successful completion. From the business and commercial point of view, there is promise of even greater advantage than has attended the construction of the Brooklyn bridge, for the missing link in the transportation between the South and the Eastern States would be supplied, and this would mean the cheapening of freight rates and consequent decrease in the price of goods landed in the New York markets. * * * Congress might reasonably be asked to aid the enterprise under conditions which would guaranty adequate return on completion. The argument is not purely local; it embraces, in a more or less vital degree, the interests of the entire country.

[From the Washington Critic, July 21, 1888.]

That a railway bridge will eventually span the Hudson at New York, as proposed by the present projectors or upon other plans yet to be determined, is only a question of time. The designs of Mr. Lindenthal, the engineer of the company now seeking incorporation by Congress, are pronounced by other engineers to be both admirable and practicable, and the necessity of such a crossing for the accommodation of the 900 railway trains now arriving daily on the Jersey side of the river is of course admitted. The bridge will "come high" as to cost, but the investment can not fail to be a profitable one, and the whole country, especially outside of New England, will welcome the structure that gives it unimpeded access to the metropolis, as the greatest benefaction of this commercial age.

[From the New York Times, January 26, 1889.]

What New York most needs for its future growth and prosperity is closer connection with the territory about it. The more tunnels and bridges there are connecting Manhattan Island with adjacent lands, provided there is no obstruction of navigation on its surrounding waters, the better for the city, and their construction should be encouraged and promoted in every legitimate way. The one great advantage of this city, which has made it so largely the emporium of the country's commerce, is its unsurpassed harbor and its unequalled water front. * * *

But New York's advantage from accessibility by water, and the facility of handling traffic that comes and goes upon that element, has been considerably offset by the break in communication with it by land, save in one direction. This adds largely to the inconvenience and expense of handling traffic by rail, and is a serious drawback for the city. The easier it is to get into the city and out of it, and the less trouble and expense it involves, the better for its growth and prosperity. * * *

* * * Every effort of capital and enterprise to supply the bonds of union between sections of the metropolis, and to give it a more perfect connection with the channels of traffic in every direction, should be encouraged and promoted. All barriers should be removed, and our borders should lie open to the world.

[From the New York Tribune, December 1, 1889.]

At the foot of Cortlandt, Liberty, Chambers, and other streets, and along the water front of West street, are all the ferry-houses through which passage is taken to New Jersey. Not less than 120,000 people are compelled every day to make this perilous journey across West street, and the wonder is how they ever manage to do it without being drawn into a whirlpool of slime, muck, wheels, hoofs, and destruction. * * * Think of Macauley's enlightened New Zealander standing on the top of the Pennsylvania ferry-house watching that fearful scene. Hear him gasp with amazement and vexation, "Why in thunder don't these people get up a revolution or build a bridge?" [Namely, over West street].

[From the Saratogian, Saratoga Springs, N. Y., January 10, 1889.]

A bridge across the Hudson River at New York? If all this little sentence contains is not apparent to any individual, let him visit New York and look over the ground, or rather the water, for there is enough of water between New York and Jersey City to stagger any bridge builder who has lived up to the present time. Across the Hudson—not under it or on its bosom, but above—so far above that the great ships and steamers having their docks further up may go in and out without being hindered.

The problem of getting passengers and freight from New York to Jersey City, and *vice versa*, by some better method than ferriage, has long stared the officers of railroads centering in Jersey City in the face. * * *

It will be well to crown the gigantic works of the nineteenth century with the building of this proposed bridge. It seems fitting that the century which produced the Atlantic cable should not go out without the completion of some great engineering feat, and a bridge at New York, across the Hudson, would be a fitting work with which to close the magnificent list of triumphs. * * *

A bill is before Congress to permit the building of this bridge, and there is no reason to suppose the request will be refused.

[From the Commercial Gazette, Pittsburgh, Pa.]

The East River bridge, which unites New York and Brooklyn and the collection of towns upon Long Island, and which was opened for general traffic some six years ago, has proved how far behind the reality the boldest predictions respecting the growth of traffic between the two cities have turned out to be. When the project of an East River bridge was first mooted, some twenty years ago, it was held to be impracticable and extravagant; but, as it approached completion, the foreshadowings of its great utility called into life the project of a permanent way across the North River. The great width and depth of the Hudson, however, seemed to render the serious consideration of a bridge project useless. * * *

42 BRIDGE ACROSS THE HUDSON RIVER AT NEW YORK CITY.

Gustav Lindenthal, the bridge engineer, has formed a project to cross the Hudson with a colossal suspension bridge, with a single span of 2,850 feet. This is the greatest length of span for a bridge that has ever been planned.

[From the New York Sun, July 6, 1888.]

The bill which has just been introduced into Congress, authorizing the construction of a bridge across the Hudson between the city of New York and the New Jersey coast, presents several features of importance. It is to be a railroad bridge as well as for other travel; in fact, from the points at which it would necessarily be constructed, its chief immediate importance would be for railways.

The great commercial convenience of opening an all-rail route from New York to the West and South, avoiding the present barge work for freight and ferrying for passengers must be obvious. * * *

A noticeable feature is, that it is to be constructed with a single span over the entire river; and this is not to be done by advancing the terminal piers beyond the present wharf line, since it is expressly provided that they must be kept within that line. This provision must disarm at the outset the main opposition hitherto encountered against a bridge. * * * Another provision is, that the bridge shall have at least 140 feet in the clear, above the level of ordinary high water.

[From the Statesman, Yonkers, N. Y., April 9, 1889.]

When the East River bridge was first broached, the idea was disparaged by all the old fossils who never fail to predict insuperable obstacles in the face of enterprise.

The same spirit will be sure to be opposed in certain quarters to the North River bridge, which, it is thought, will some day facilitate communication between New York and Jersey City. * * *

The contemplated completion of the bridge is ten years hence; but, if we allow only two years for incidental delays (and ten years are very little to allow), we presume the satisfaction will be all but universal if rapid transit is thus effected by the close of the first year of the twentieth century.

[From the Journal, Newark, N. J., January, 1890.]

This is truly a magnificent conception, and its realization would be the wonder of a world accustomed to stupendous undertakings. The engineering difficulties are not such that could not be overcome as readily as those involved in the construction of the Brooklyn bridge.

[Brooklyn Times, March 6, 1890.]

Engineer Lindenthal explained his great Hudson River bridge to a Congressional Committee yesterday. It will be a fine thing for New York and for New Jersey, and Congress need not hesitate to authorize it.

[Rochester Herald, March 10, 1890.]

New York's greatest need is for rapid transit between the business part of the city and the resident portion and the suburbs. In only one direction can the people get out by steam cars, and that is over the New York Central. A great many New York business men make their homes in New Jersey or on Long Island, either of which is reached by ferries always overcrowded at the busiest hours, and often delayed by fog and ice. The exception is found in the Brooklyn bridge, which from the immense throngs that cross it night and morning is more uncomfortable even than the ferry-boats. Rapid transit over an immense bridge to New Jersey would afford relief and comfort.

[From Engineering News, January 7, 1888.]

A paper of remarkable and unusual interest was read at the Wednesday meeting of the American Society of Civil Engineers, by Mr. Gustav Lindenthal, of Pittsburgh, Pa., outlining in detail the great project of a six-track railroad suspension bridge over North River, which Mr. Lindenthal has been engaged in studying for some time, under auspices which, we are assured, give strong promise of an early beginning of the work. The necessity for some such costly and monumental structure is becoming so clear that only the enormous cost of it (some \$15,000,000) for the bridge only, and perhaps doubt as to its unprecedented engineering problem, can delay it long. But the cost is certainly not so formidable an obstacle for to-day as was that of the Brooklyn Bridge for 1868, when its construction was determined on, nor does vastness of itself imply corresponding technical difficulties, while there is probably no one on either side of the ocean who could be counted on more confidently to deal successfully with the intricate engineering problems involved than Mr. Lindenthal. Certainly, no one of the eminent engineers who have already constructed great long-span bridges could have been justly regarded as better equipped for his work at its inception.